

WORLD-WIDE

AIR TRANSPORTATION

INCLUDING AIR COMMERCE



*In this
Issue*

VOL. 17, No. 3

THE WORLD'S FIRST AND ONLY AIR CARGO MAGAZINE

SEPTEMBER, 1959

Sebene Sets Another "First" . . . Airshipped to South Korea . . . Local Air Cargo Service in the Rocky Mountain Area . . . the concluding chapters of Proper Packaging Means Money in the Bank and Air Express vs. Railway Express: A Comparison of Freshness of Fishery Products . . . the sixth instalment of United States Overseas Air Cargo Services . . . plus the newly designed Air Commerce section which includes latest international air cargo rates and all your favorite departments.

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AIR TRANSPORTATION

Established October, 1942



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AIR TRANSPORTATION, published once each month, thoroughly covers the entire air cargo industry for the benefit of all those engaged in shipping and handling domestic and international air freight, air express, and air parcel post, as well as using the domestic and international air mail services. Included in **AIR TRANSPORTATION'S** wide coverage are: air shipping, cargo plane development, rates, packaging, materials handling, documentation, air cargo terminal development, insurance, routing, interline procedures, new equipment, commercial airlines, military air transport service, air freight forwarders, personnel.

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September, 1950

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COVER

Jet-assisted take-off of a Brantiff International Airways transport at Dallas—the first ever conducted by a commercial airline in the United States.

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SAN FRANCISCO, CAL., Int'l. Airport, JUNIPER 4-5027

NEWARK, N. J., Newark Airport, MITCHELL 2-8646

Local Air Cargo Service In The Rocky Mountain Area

By G. S. KITCHEN

Cargo Sales Manager, Frontier Airlines

FRONTIER AIRLINES, the nation's largest local service carrier, is truly the "mixed local" of the airways. The same is true, of course, of the other local service carriers operating in various parts of the United States. When Frontier Airlines (formerly Challenger, Monarch and Arizona) began service, we were confronted with many unusual problems. To provide adequately the necessary service, we were required to adapt our equipment and operations to the peculiarities of the territory which we serve.

Since cargo moves from many different shippers, each shipment presents a problem of its own. To enable us to accommodate the majority of air shipments, we have built into our DC-3s a large rear cargo compartment capable of taking shipments up to 90 inches in length. Reinforced floors makes it possible for us to handle heavier shipments than would be possible in conventional type equipment. Since Frontier connects all transcontinental carriers, our present equipment makes it possible to handle nearly any shipment arriving via cargoliner which, in effect, puts the forty-seven communities on Frontier's system only hours from the distribution centers of the world.

The handling of traffic in the Rocky Mountain Empire States presents problems which would probably not be found in any other comparable area. This condition exists because of the extreme differences in industry and climate in various states which Frontier serves. These factors alone make it necessary for us to develop a cargo program which will serve the greatest number of users.

Little over three years ago, when service was first started, our sales personnel and our advertising pointed out the time savings afforded by air which could readily be converted into dollars and cents. We can now point to many examples of reduced inventories, less storage cost, and more days to sell perishable items.

A spectator watching cargo being boarded on a



Frontier flight would undoubtedly be amazed at the variety in some shipments. Newspapers, automobile tires, flowers, dogs, baby chicks, perishable fruits and produce, and oil well supplies are among the more common items. We have, on occasion, had shipments of crated livestock, deodorized skunks, and only recently one of our stations boarded three goats—crated, of course. In addition to the commercial shipper, we have the vacationers and the fishermen who contribute to our cargo traffic. A successful angler would generally use air to ship his trout back home. The same is true of the hunter who bags his elk and deer. In these cases, air transportation means the difference between good eating and spoilage.

Throughout our service we have maintained an aggressive attitude on the part of our personnel attempting to provide our customers with the service that the air shipper has every right to expect. Speed is not enough if the service is lacking. To acquaint the people on our system with the services available, we have, from time to time, gone into special promotional programs to point up the advantages of air mail and air parcel post. Quick reference charts have been distributed, and in all cases we have worked very closely with the Post Office Department. Air express, with its pick-up and delivery features, has been solicited in cooperation with the express company's commercial agents. Air freight is sold to the volume shippers in those cases where the traffic will not stand the higher rates.

One of our major sources of revenue, and one service which is in great demand, is the handling of human remains. While this is a valuable transportation service, it is also a very valuable public service to the isolated communities we serve. In some cases time saved runs into days instead of hours. This, in itself, is worth a great deal to the immediate family and, we hope, adds a small touch of comfort when it is most needed.

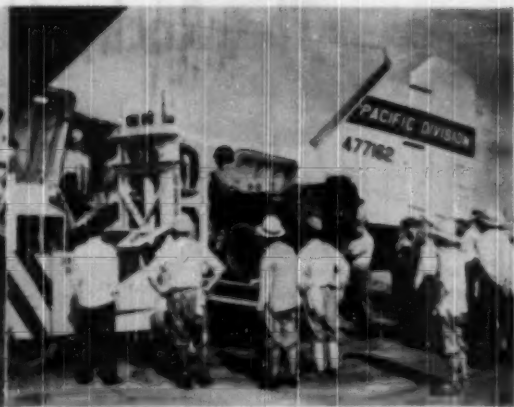
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AIRSHIPPED TO SOUTH KOREA

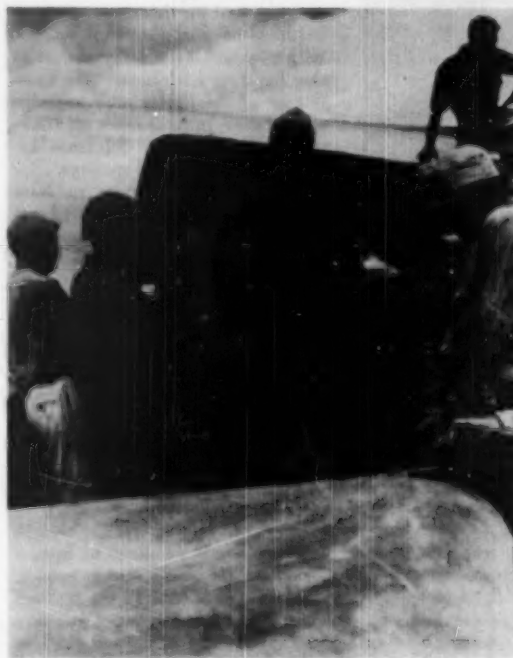
First air cargo pictures rushed to Air Transportation Magazine from the war zone in the Orient



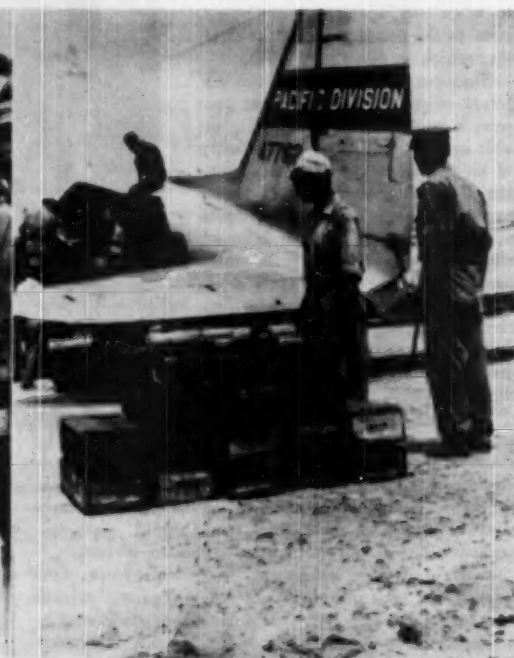
NATIVE LABORERS at a Southern Japan air base are helped aboard a Military Air Transport Service C-47 in which they will help spot a jeep for service in the South Korean battle area.



FORK LIFT does a neat job in elevating palleted jeep and bringing it into position at the cargo door of the MATS airfreighter. Such mechanical handling equipment is not available in South Korea.



LACKING UNLOADING EQUIPMENT, South Korean soldiers unload the jeep by muscle. The truck on which the jeep is loaded will back up to a sand bank where the rugged auto drives off.



INCLUDED IN THE SAME CARGO are cases of ammunition to aid the South Koreans and the troops of the United States to hold the line against the numerically superior North Korean invader.

AIR EXPRESS VS. RAILWAY EXPRESS

A Comparison of Freshness Of Fishery Products

By WILLIAM B. LANHAM, JR.

Formerly Chemist

Branch of Commercial Fisheries

Fish and Wildlife Service

U. S. Department of Interior

CONCLUSION

FISH WERE PURCHASED from dealers in Tampa, Miami, and Naples, Florida. In all but two instances, the fish shipped had been less than 24 hours out of the water. In one instance, the fish were one day out of the water at the time of packing and in the other they were two days out of water. At the time of packing, the fish used for the air transport shipments had been out of water the same length of time as those used for the comparable railway express shipment.

The fish shipped by air transport were usually purchased in the early afternoon of the day that they were shipped and were chilled several hours in crushed ice. Gutted fish were used for the air transport shipments. Just before the dealer closed his establishment for the night, the internal temperatures of the fish were taken. The fish were then packed in the air transport shipping containers and delivered by automobile to the airport. In most instances, a single container of fish was sent in each shipment. Since there was no air connection at Naples, the fish obtained there were packed in the container and brought to Tampa by automobile, a trip of about four hours.

Each day, the container of fish to be shipped by air transport was left at the

airport to be loaded on a plane bound for Washington, D. C. During this time, one to four hours, no effort was made to keep the package cool. The flights used were: from Miami, the 11:30 p.m. (passenger) and 9 p.m. (cargo) flights which arrived in Washington at 6:10 a.m. the following day; and from Tampa, the 8:05 p.m. (passenger) flight which arrived in Washington at 4:15 a.m. the following day. The total time the fish were packaged averaged 15 hours per shipment. Within a short time after their arrival at Washington, the air transport shipments were taken by truck to the laboratory at College Park, Maryland, for testing.

Fish used for railway express shipments were packed in wooden boxes or barrels with crushed ice. Gutted fish were used for these shipments, also. These fish were packed by the dealer at the close of the day and no special precautions were taken, the shipments being handled in the usual way for railway express handling. The trains carrying the shipments left at about 10 p.m. and the shipments were called for in Washington late in the morning, 2½ days later. Forty pounds of fish were sent in each shipment since this was the quantity which was sent in each air shipping container, except a few.



FOUR-YEAR OLD JANE LEAVITT, of St. Paul, helped along by Northwest Airlines Stewardess Kitty Page, poses with a 22-pound salmon which the little girl won in a weight-guessing contest sponsored by a Minneapolis cafe. The ling salmon was flown into Minneapolis from Seattle by Northwest in just a few hours.

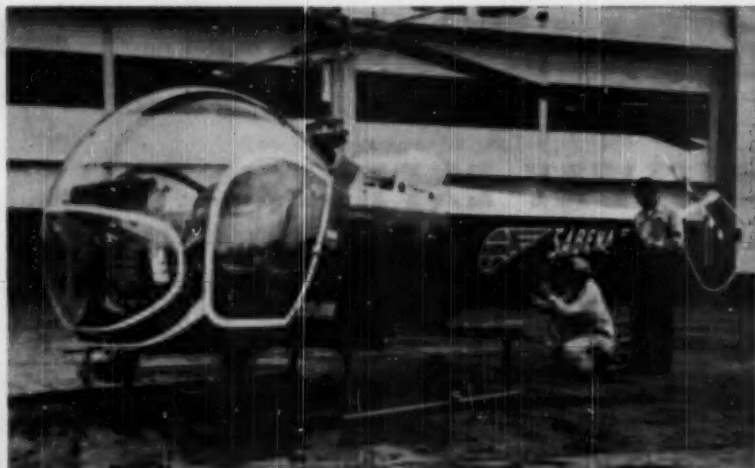
After each shipment arrived at College Park, the internal temperatures of several fish from the top, middle and bottom layers were taken. The fish were examined for breaks in the flesh, crushing, distortion and bleaching of color. The air transport shipping containers were examined for breaks or crushing. The railway express shipping containers were examined for the adequacy of the amount of crushed ice remaining in the containers.

On the day of arrival, representative fish from the railway express and air transport shipments were filleted and broiled under identical conditions and without seasoning. Portions were served to a taste panel of from four to seven persons who had been especially selected as being qualified through experience to determine small differences in freshness of fish. Each portion was identified only by a code letter in order that the panel would not know how the fish had been shipped.

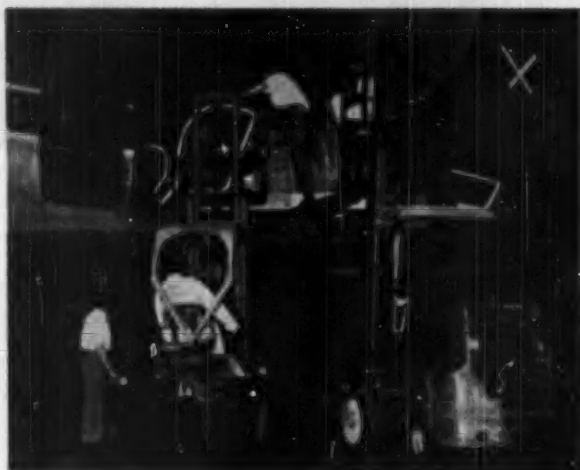
After this initial test, a number of fish from each shipment were held in crushed ice in a cold room at 35°F. Taste tests were made at intervals of several days and the stored fish were compared with a fresh sample of the same species which had just arrived by

(Continued on Page 38)

SABENA Sets Another "FIRST"

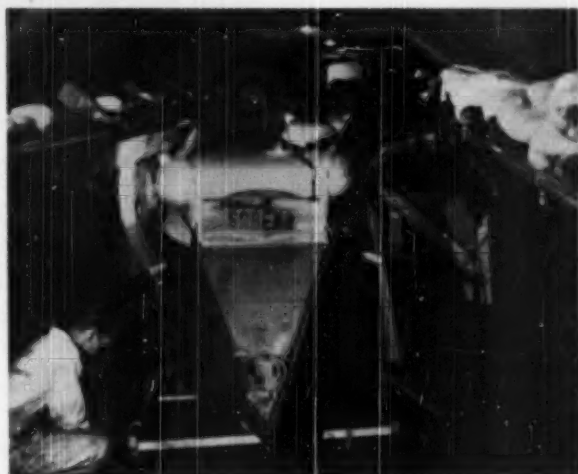


PREPARATION



LOADING

SABENA Belgian Airlines recently hauled two Bell helicopters across the Atlantic for the purpose of inaugurating scheduled helicopter air mail service in Belgium. Not only is this service the first in Belgium's history, it also is the first to be operated on the Continent. Sabena, which is under contract with the Belgian Post Office, has scheduled daily helicopter stops at Libramont, Liege, Tongres, Hasselt, Beringen, Turnhout, Herenthals, Antwerp, and Brussels. The "eggbeaters" will meet transatlantic planes for quick transfer of air mail to foreign destinations. Chalk up another for Sabena!



STOWING

PROPER PACKAGING Means Money in the Bank

CONCLUSION

BILL PRINGLE, Pan American World Airways' cargo representative, does an effective job of packaging attractive Carol Hill with the new destination tape labels developed by Curt Hasthausen, cargo traffic superintendent for the airline's Pacific routes (see Air Commerce in August AT). Printed in bright colors on Scotch tape and gummed to packages, the individual hues tip off the different destinations at a glance.



ALREADY WIDELY PUBLICIZED emergency shipments of drugs, food, clothing, etc., have done much to familiarize the public with the advantages of air freight. Probably the Berlin Airlift is the outstanding example of the use of air freight for emergency purposes. Another type of emergency shipment is the delivery of repair parts to avoid stoppage of production or cessation of construction work. Twenty-eight thousand pounds of boom topping winches were recently flown to a port so that a cargo ship could sail without undue delay. Probably one of the oddest emergency shipments flown was a consignment of 10,000 Australian beetles to be used in a fight to destroy a cattle poisoning weed. Operation Swarmer, which tested the practicability of landing and completely supplying a substantial number of troops solely by air,

is also an example of the use of air freight in an unusual situation.

In summary, and disregarding the dramatic incidents, more and more shippers and consignees are finding it economical to ship regularly by air freight. This growth of air transportation seems destined to accelerate now that the initial inertia has been overcome and education is bringing about wider public acceptance.

In view of the anticipated continued increase in the volume of merchandise shipped by air freight, considerable thought should be given to the contribution that can be made by container producers. One of the most difficult objectives of air freight industry is to change shippers' deeply ingrained habits of crating and packaging all shipments as if for surface transportation. Parveyors of air freight service advertise,

"your freight shipments when transported via air require only a bare minimum of packing. Get away from costly, time-worn boxing and packaging techniques." Most of the progress that has occurred in packaging shipments for air freight transportation can be traced to World War II. Packaging manufacturers, airlines and government agencies pooled their knowledge on the intricacies of preparing goods for air shipments. Unfortunately, however, the development of advantageous special packaging techniques for products to be transported by air has not kept pace with the growth of air freight service. As stated by a representative of the IATA, "There's a fortune awaiting the man who could do something intelligent about packing materials and containers for transport of commodities by air."

(Continued on Page 28)

By
N. W. KENDALL

United States Overseas Air Cargo Services

PART VI

(D) Air Trade in Leading Individual Commodities, by Country

Because of the numerous countries engaged in air trade with the United States and the wide variety of goods shipped, it is not practicable to present in this report a summary of air exports or imports on a country-by-commodity or commodity-by-country basis, even for a single period of time. As an alternative, there are shown next month the major countries of destination for a number of leading United States air export commodities and of the major countries of origin for several leading United States air import commodities, based on Census data for a four-month period in 1947.

(E) Trade at Leading Airports

In concluding the series of tables derived from Census data, Table 13

(next month) summarizes for the year 1946, and for the 22-month period ended October, 1947, the value and shipping weight of exports and imports through 36 selected airports. Inspection of the table will reveal information concerning the relative importance of various airports in United States trade by air, and differences among airports with respect to the value-per-pound of in-bound and out-bound air movements.

(F) Trends During 1948

Over-all statistics of trade by air during 1948 have not been compiled, but the available data indicate a decline in the annual rate of growth of total air trade, particularly in exports by air. As shown in Table 13, two airports have been predominant in United States foreign trade by air, accounting for the greater part of both total air exports

(Continued on Page 27)

Table 12—United States Exports by Air of Domestic and Foreign Merchandise, and General Imports of Merchandise by Air: Value and Shipping Weight, by Country of Origin or Destination, and by Quarter, Year 1947

Continent and country	Exports		Imports	
	Value	Shipping wt.	Value	Shipping wt.
	(Dollars)	(Pounds)	(Dollars)	(Pounds)
FIRST QUARTER				
North America:				
Canada.....	1,232,405	342,909	685,311	244,784
Mexico.....	6,444,473	1,748,807	1,370,082	263,331
Central America.....	2,171,092	902,105	438,000	278,010
Cuba.....	3,867,655	1,435,062	293,885	578,983
Other North America.....	1,278,142	720,634	457,703	1,008,811
Total, North America.....	14,603,857	5,140,427	3,264,981	2,380,518
South America:				
Colombia.....	3,009,302	860,392	431,737	43,617
Venezuela.....	2,395,540	665,929	245,366	15,448
Brazil.....	5,035,913	470,694	1,015,446	28,158
Argentina.....	2,406,800	188,908	214,093	36,412
Other South America.....	1,412,514	284,124	79,016	31,551
Total, South America.....	14,341,372	2,360,047	1,965,658	155,186
Europe:				
Sweden.....	3,148,377	188,506	83,240	2,733
United Kingdom.....	1,333,788	114,407	597,155	24,238
Netherlands.....	291,902	61,663	222,140	7,125
Belgium and Luxembourg.....	1,800,915	113,141	174,819	1,422
France.....	1,543,096	107,690	778,080	31,550
Switzerland.....	944,150	52,959	9,138,947	54,065
Union of Soviet Socialist Republics.....	12,631	314	528,973	1,129
Other Europe.....	1,630,544	332,607	1,171,496	71,616
Total, Europe.....	10,785,400	968,923	12,664,803	193,928
Asia:				
Turkey.....	52,305	11,770	301,181	2,386
India and Pakistan.....	1,336,825	59,671	37,253	312
Thailand.....	37,791	3,116	202,504	270
Philippines, Republic of.....	1,398,459	84,306	72,461	14,022
China.....	278,964	45,820	363,881	9,701
Other Asia.....	677,984	80,799	166,492	18,075
Total Asia.....	3,852,310	285,482	1,143,772	44,768
Australia, New Zealand and Oceania, total.....	171,801	32,437	15,894	7,915
Africa:				
Egypt.....	309,598	62,598	129,648	1,345
Belgian Congo.....	39,053	8,329	1,379	339
Union of South Africa.....	95,436	17,132	290,007	430
Other Africa.....	233,703	39,329	38,298	1,113
Total, Africa.....	588,250	147,379	359,331	3,217
Grand total.....	44,412,880	9,083,685	19,434,490	2,794,532

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PROFITS
ARE IN
THE AIR

VOL. 17

SEPTEMBER, 1960

NO. 3

CLINIC-FAIR DRAWS CROWDS

Speers Confident AA Can Maintain Freight Volume

Although seven of American Airlines' airfreighters have gone into service in the Pacific airlift, C. E. Speers, assistant vice president and general sales manager, pointed out that AA's domestic air freight operations will hardly be affected, if at all. In fact, Speers indicated that the carrier's cargo sales efforts will be increased.

Under a revised cargo schedule, increased loads on the weak segments of AA's all-cargo runs, in addition to greater utilization of the passenger-cargo fleet, is expected to offset the reduction of airfreighters. Speers anticipated the handling of the "same number of ton-miles carried in May and June, if not more." In May, a total of 2,942,662 ton-miles of freight was flown; and in June, 3,018,605 ton-miles.

In view of the fact that most shipments are filed between 7 p.m. and 1 a.m., Speers recommended the greater use of aircraft flying light during the day.

"Our sales personnel could really show their ability by educating shippers on the advantages of using that space on combination aircraft during the morning and afternoon hours," he said. "If we can fill that space, we can move them off the loss of space on the airfreighters joining the Pacific airlift. I'll go even farther: we can increase the volume carried."

Experts Gather in California For Big Parley on Air Freight

The Golden State grabbed the headlines last month with its monumental California Air Freight Clinic and Air Freight Fair, sponsored by the California Aeronautics Commission and Oakland Chamber of Commerce Aviation Committee, in cooperation with the Air Cargo Institute of California, Oakland Board of Port Commissioners, and the air cargo industry. Panel sessions were held at the Hotel Claremont, Berkeley, on August 19, and the fair at the Oakland Municipal Airport on the following day. The fair, which featured an outstanding exhibition and demonstrations of cargoplanes, equipment, and methods, sprawled over an area of more than 100,000 square feet.

Douglas to Rebuild 100 R4Ds as Airfreighters

WASH., D. C.—The United States Navy is returning 100 R4Ds (DC-3s) to the Douglas Aircraft Company where they will be rebuilt as cargoplanes—bigger and faster aircraft than they were before. Designated R4D6s, they will be the Navy's version of the Super DC-3.

The modernization process will give the plane double its former range, 50 percent more useful load, 50 miles per hour more, greater overall length, shorter wingspan, taller stabilizer, and an additional 6,000 pounds gross weight. Cruising speed will be 225 miles per hour, and top speed 270 miles per hour.

Participating in the formal opening ceremony on the opening day were W. H. White, general chairman; John Felton Turner, chairman, California Aeronautics Commission; Fred B. McCormac, chairman, Oakland Chamber of Commerce Aviation Committee; and Harold Angier, president, Air Cargo Institute of California.

Interested parties attended fully 10 panels which covered all the aspects of air freight. The Air Freight luncheon address was delivered by Wayne W. Parrish, publisher of *American Aviation*. Parrish discussed the subject of the airplane's potential in the freight market. Following is a complete list of the panels:

Air Freight Economics

Panel Leader: Harry E. Karot, Los Angeles, Special Consultant to California Aeronautics Commission.

Panel Members: Representing all carriers: George T. Carson, Burbank, Executive Vice President of The Flying Tiger Line, Inc.; W. L. McMillan, New York, Assistant Treasurer and Director of Economic Planning, American Airlines; Professor Robert Foster Craig, Los Angeles, University of Southern California; Professor John F. Carson, Berkeley, University of California, Assistant Professor of Business Transportation.

Moderator: Warren E. Casey, Sacramento, State Director of Aeronautics.

Terminal Handling

Panel Leader: L. R. Hochstetler, Burbank, Air Cargo Sales Region, Lockheed Aircraft Corporation.

Panel Members: Frank Jones, New York, Assistant Operations Manager, Air Cargo, American Airlines; D. W. Rapp, Manager, Ground Services, Texas World Airlines, Kansas City, Mo.; A. E. Harpshorn, Oakland, President, Pacific International Express.

Moderator: Clay Miller, San Francisco, Assistant Freight Traffic Manager, American Freight Lines.

(Continued on Page 13)

Butler Explains Sabena's New Door-to-Door Insurance Rates

NEW YORK—Some time ago Sabena Belgian Air Lines increased cargo insurance coverage by a few cents. William J. Butler, air cargo manager for the carrier, explained why this step was taken, and why door-to-door coverage aids the shipper, in letters distributed to shippers and air cargo agents. The text of his communications follows:

"Sabena felt that a shipper who desires to purchase insurance to cover his shipment should get the maximum amount of coverage available and thus be completely insured. Under the former airport-to-air-

port insurance arrangements, this was not possible. It was found that in most cases

(Continued on Page 13)

Northwest's Expansion Forces Changes in Sales Department

ST. PAUL—A basic organization pattern under which sales activities of Northwest Airlines are divided into Eastern, Central, Western, and Orient Regions, have been announced by the board of directors of the airline. All regions under the supervision of Amos Culbert, vice president-sales, the new set-up is reported to be the most sweeping in the history of NWA. From the standpoint of air cargo, officials anticipate that the reorganization will be of immense benefit to shippers.

Headquarters of the Eastern Region is New York; Central Region, Chicago; Western Region, Seattle; and Orient Region, Tokyo. NWA explained the composition of its regional plan this way:

"The Eastern Region, with headquarters in New York, will include Europe, the Atlantic seaboard, and a group of Northern and Southern states in the longitudinal area extending as far westward as Lake Michigan. In this region are such cities as London; New York; Newark; Washington, D. C.; Cleveland; Pittsburgh; and Windsor, Ontario, which are closely identified with Northwest Airlines, as well as a number of other cities of potential importance to the airline.

"The Central Region falls into the longitudinal area between Lake Michigan and the Eastern border of Montana, and also includes the Canadian provinces of Manitoba, Saskatchewan, and Alberta. Within it are such cities as Chicago, Milwaukee, Minneapolis-St. Paul, Madison, Rochester, La Crosse, Eau Claire, Duluth, Superior, Fargo, Grand Forks, Jamestown, Aberdeen, Bismarck, Mandan, Edmonston, Winthrop.

"The Western Region, in the longitudinal area from the Eastern border of Montana to the Pacific Coast, also includes British Columbia, Alaska, and Hawaii. Within it are such cities as Honolulu; Anchorage; Vancouver, B. C.; San Francisco; Los Angeles; Butte; Great Falls; Billings; Miles City; Bozeman; Helena; Missoula; Kalispell; Spokane; Wenatchee; Yakima; Tacoma; Seattle.

"The Orient Region, already set up since Northwest Airlines began its operations to the Far East, includes Japan, China, Korea, Okinawa, and the Philippines, as well as Formosa and Hong Kong."

K. D. McKenna, former European director for NWA, heads the Eastern Region; Russell G. Collins, district sales manager at Detroit, is in charge of the Central Region; Dean J. Hanson, Western sales manager, assumes the position of manager of the Western Region, and R. J. Morgan, Orient sales manager, heads the Orient Region.

California Clinic-Fair

(Continued from Page 11)

Relative Costs of Air Freight and Other Forms of Transportation

Panel Leader: Joseph D. Boykin, New York, Director, Cargo Sales, American Airlines.

Panel Members: Max Thomas, Burbank, General Sales Manager, The Flying Tiger Line, Inc.; M. C. Wilkin, San Antonio, General Sales Manager, Ship Airways; George T. Cook, Oakland, Regional Traffic Manager, Chevrolet-Oakland Division, General Motors; Lester W. Hish, Berkeley, President, Retail Merchants, Inc.

Moderator: F. S. Clough, Oakland, Manager, Retail Merchants, Inc.

New Freight Airways

Panel Leader: D. A. Buck, Seattle, Sales Engineer, Boeing Airplane Company; Warren Dickinson, Santa Monica, Assistant to Chief Engineer, Douglas Aircraft Co., Inc.

Panel Members: George Y. Cramer, Burbank, Executive Vice President, The Flying Tiger Line, Inc.; W. W. Davies, San Francisco, Director of Engineering, United Air Lines; T. L. Green, Burbank, Vice President-Operations, Ship Airways.

Moderator: Ed Brady, Ann Arbor and Aviation Specialist, KNBC, San Francisco.

International Air Freight

Panel Leader: Covering the Atlantic and operations serving Europe and Asia: S. R. Egan, New York, Manager, Cargo Sales, Trans World Airlines. Covering the Pacific and Latin America: R. W. Fournier, San Francisco, Regional Sales Manager, Pan American World Airways.

Panel Members: Orvin M. Nelson, Oakland, President, Transcon Air Lines; John Wall, San Francisco, Manager, International Forwarders; Andrew Hart, San Francisco, Vice President, Airfreight International; Walter E. Wood, Honolulu, Cargo Sales Manager, Hawaiian Airlines.

Moderator: Richard H. Stephens, Burbank, President, Outer Laboratories International.

Processing of Airborne Perishables

Panel Leader: Mr. Richard P. Della-Vedova, Burbank, Research Engineer, Lockheed Aircraft Corporation.

Panel Members: Lloyd A. Byll, Fresno, Branch of Plant Industries, Seeds and Agricultural Engineering; Charles T. Wrightson, Fresno, Station Manager, United Air Lines.

Moderator: J. Frederick Mount, Los Angeles, Western Growers Association.

Air Cargo Insurance

Panel Leader: Woodward Mahon, San Francisco, Marine Insurance, Transair's Panel Insurance Company.

Panel Members: E. J. Sherer, Chicago, Head of Claims Department, United Air Lines; J. R. Miller, Manager, Loss Department, Chubb & Son, San Francisco; J. Dougherty, San Francisco, Manager of Marine Service Department, Insurance Company of North America.

Moderator: A. Hartman, Jr., San Francisco, Manager, Marine Department, Marine Insurance Company.

Packaging and Air Freight

Panel Leader: M. R. Birch, Manager, Sales Promotion Department, Fibreboard Products, San Francisco.

Panel Members: Col. Lloyd D. Bunting, San Francisco, Former Transportation Officer, U.S. Air Force, now Deputy Post Commander, Port Hueneme, California; L. J. Williams, Harbor, Office in Charge, Naval Overseas Air Cargo Terminal, Alameda.

Moderator: Dr. Ray W. Kelly, San Francisco, Golden Gate College.

Grounded Transportation for Air Freight

Panel Leader: J. C. Butherford, Oakland, Assistant Sales Manager, Shastel Warehouse Company.

Panel Members: Representing all Carriers: Ralph M. Payne, Los Angeles, Regional Manager, Cargo Sales, Trans World Airlines; W. R. Holten, Burbank, Assistant General Manager, Ship Airways; C. A. Greene, San Francisco, District Manager, The Flying Tiger Line, Inc.; N. L. Hunt, Los Angeles, National Director of Sales, American Airlines.

Moderator: Alexander A. Cameron, Oakland, District Cargo Sales Representative, United Air Lines.

California's Floral Industry and Air Freight

Panel Leader: Bill Lee, San Mateo, Representing Northern California Flower Shippers Association.

Panel Members: James Bonaccorsi, President, San Francisco, Golden Gate Wholesale Florists; J. D. McPherson, San Francisco, President, Airborne Flower and Freight Traffic; Robert Mandel, Chicago, Staff Superintendent, Cargo Sales, United Air Lines.

Moderator: C. J. Bondell, San Francisco, Bondell & Company.

Management of the clinic and fair was overseen by Chairman White and Howard Waldorf, secretary-manager.

Comprising the Arrangements Committee of the vast project were: Raymond E. Vail, Pacific Airfreight Corporation, chairman; Norman D. Kild, Western Air Lines; Alfred I. Phelps, American Airlines; W. H. Hays, Standard Oil Company; Robert Hubley, California Central Airlines; Jack Grounds, Pan American World Airways; and Harry Flynn, Trans World Airlines.

The Reception and Registration Committee was composed of James R. DeKorne, Central Bank, chairman; Thomas D. Woodward, Pan American World Airways; Carl Taft, Shell Oil Company; H. B. Anderson, Union Oil Company; and Robert F. Dade, Dade Brothers.

On the Panel and Program Committee were B. H. Maxwell, United Beverage

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Distributors, chairman; Douglas Stark, American Airlines; Fred J. Wilkinson, Slick Airways; and Charles C. Green, Flying Tiger Line.

Serving on the Publicity Committee were J. Walter Fraton, Port of Oakland, chairman; W. R. Pantan, Standard Oil Company; Dave Frailley, American Airlines; James Cowdy, United Air Lines; Ken Fletcher, Trans World Airlines; and Les Kimball, Flying Tiger Line.

The Air Freight Fair Committee, headed up by Arthur H. Abel and J. G. Bastow, both of the Port of Oakland, serving in the respective posts of chairman and vice chairman, also included Alexander A. Cameron, United; Ted Knicker, Slick; Jack Watkins, American; Van Hurd, Flying Tiger; Allen Colburn, Southwest; and Alvin Mitchell, Port of Oakland.

George M. Keler, Anglo-California National Bank, headed the Finance Committee; and serving on the Policy Committee were Fred B. McCormac, Pacific Mutual Life Insurance Company, chairman; John Felton Turner, and W. H. White.

L. R. "Mike" Hackney, Lockheed Aircraft Corporation, worked in the capacity of chairman of the Air Cargo Institute of California Panel Committee; Ernest W. Gill, Jr., Douglas Aircraft Company, vice chairman; and Lyman Lantz, Air Cargo Institute of California, secretary. Other members of this committee included Professor Robert Fenton Craig, University of Southern California; George T. Cascon, executive vice president, Flying Tiger Line; and W. E. Hollan, assistant general sales manager, Slick Airways.

Sabena Insurance Rates

(Continued From Page 11)

where insurance claims were put forth from the insurance company, the actual cases revolved around the delivery of the package, either to the airport or to the consignee at the other end, this being the most likely time for any loss, theft, or damage to occur, since nothing can happen to a shipment while it is actually traveling by air, except in the case of an actual aircraft accident. We desired to extend our coverage on behalf of our shippers to an all-risk insurance, on a door-to-door basis.

"In order to do this, it was necessary for us to increase our insurance rates a few cents; however, it is felt that if your customer is desirous of purchasing additional insurance to cover his shipment, he would certainly want the shipment com-

pletely covered, up to the point of delivery. We have, therefore, taken the lead in the industry and initiated this door-to-door policy, and as of this date, Sabena is the only airline operating out of New York offering the shipper complete insurance coverage at his request on a door-to-door basis.

"We trust that you will find that this additional coverage will also give you an additional selling point when discussing transportation via Sabena Belgian Air Lines with your customers. In closing, I would like to add that your customers' reactions to this increased insurance would be extremely welcomed by us, as we are anxious to know just exactly how they are receiving this additional coverage."

Air Brokers' Association Accepts All British Firms

LONDON—The Air Brokers' Association of Britain has relaxed its rules to permit all types of British firms engaged in the business of air brokerage and/or air chartering agents to apply for membership. Previously such membership was confined to members of the Baltic Exchange.

It is stressed, however, that there will be no reduction of the ABA's high standards for membership, and that the screening of applicants will be as strict as heretofore.

Conveyor Movie Available

WASH., D. C.—The Conveyor Equipment Manufacturers Association has produced a 28-minute film, *Years to Command*, which depicts the role mechanical handling has played in American industry since the first conveyor was installed in a Pennsylvania flour mill 67 years ago. The air cargo industry is one of the many making full use of conveyor systems. Copies of the film are available. Consult the Free column in this issue of Air Transportation.

Air France in FWI Again

PARIS—Service between France and Points in Pitre, Guadeloupe, and Port de France, Martinique, has been reestablished by Air France. Constellations are used in this service, once every two weeks. According to airline officials, the service will be increased as the traffic warrants. The flights to the French West Indies are via New York.

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BEA Starts Jet Transport Service Over the Channel

LONDON—British European Airways has inaugurated the first commercial service with jet transports, operating a four-engine turbo-propeller Vickers Viscount between London and Paris. It is understood that within two years Viscounts will go into full operation over BEA's routes. Twenty-eight have been ordered. BOAC also has ordered a number of these jet aircraft. Cruising speed of the plane is 300 miles per hour and top speed 340 miles per hour.

KLM Has Zero Reader

NEW YORK—Cargo safety is increased with the installation of a Sperry Zero Reader in a KLM Constellation, the first of its kind to be granted a scheduled airline. The electronic device, which assures more consistent instrument approach under low ceiling and visibility, recently was granted operational approval by the Civil Aeronautics Administration.

BOAC N. Y.-London Run

NEW YORK—A twice-weekly direct service to London from New York in Strakerliner aircraft has been started by British Overseas Airways Corporation. These two flights are in addition to the seven round trips each week. The direct flights depart from New York on Sundays and Thursdays. Weekend trips leave London on Wednesdays and Saturdays.

Slick Sets a New Record

SAN ANTONIO—What appears to have been the biggest month in the air freight transportation industry was rolled up by Slick Airways in July. According to Earl Slick, president of the all-freight airline, a total of 4,053,296 ton-miles was flown that month. An increase of more than 100 percent over the July, 1949, total, Slick attributed a large part of the new high to the movement of military cargoes. This was in addition to such normal loads as wearing apparel, livestock, produce, automotive equipment, cotton, television parts, and drugs.

**TWA Gets its Martin 202As
 Thirty 404s Still to Come**

NEW YORK—Trans World Airlines has accepted delivery of 12 twin-engine 202A transports which have been leased to the airline by the Glenn L. Martin Company. These are scheduled to go into operation on or about September 1. The airline will operate the 202As on medium and short-haul flights.

Thirty Martin 404s were ordered several months ago and will not be delivered for some time to come. TWA is operating more than 130 aircraft, including 66 Constellations.

The 202A, which has a cruising speed of 275 miles per hour, has a gross take-off weight of 43,000 pounds in contrast to the 39,900 pounds for the predecessor 202. This is the greatest ever given to a twin-engine transport.

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GERRIG, Hoban and Company, Inc.—The firm has announced that Henry A. Carsten, formerly associated with Bohner, Gehrig and Company, for more than 25 years, has joined the organization.

Flying Cargo, Inc.—The first to receive Civil Aeronautics Board certification as an air freight forwarder, Flying Cargo has made public special low rates between New York and San Francisco and points in the Orient. Under-100-pound rates are reduced to "allow small shippers maximum benefit" in a competitive market. The firm was organized in 1946 as J. G. Herwood Company, and changed its name a year later. It operates a branch office in Hong Kong.

Kaufman and Vinson Company—This firm has moved its offices to larger quarters at 17 State Street, New York. Phone: DOWling Green 9-7488.

A. E. Osborne—Formerly vice president of W. R. Zanes and Company, Houston, Osborne has opened his own freight forwarding firm at 6323 Corpus Christi Street, Houston. Phone: WOODcrest 5282.

Los Angeles Customs and Freight Brokers Association—The organization has divided its membership into various committees designated to serve importers and exporters. These groups are: Export Committee—Richard Heiss, Castellano and Associates, chairman; Import Committee—Horne Elder, H. Elder and Company, chairman; Entertainment Committee—Josephine Kelly, Mattoon and Company, chairman; Public Relations Committee—R. M. Teller, Jr., Judson Sheldon Division, National Carloading Corporation, chairman.

Civil Aeronautics Board—Following is a list of air freight forwarders certificated by the CAB, as of July 1:

New York: Ace Air Freight Company; Air Express International Agency, Inc.; All-Air Freight Company, Inc.; W. J. Bryan and Company of New York, Inc.; Seaway Air Freight Corporation; Flying Cargo, Inc.; Airways Freight Forwarding Corporation; Trans-Export Company; Video Distributors, Inc.
New Jersey: ABC Air Freight Company, Inc.; Allied Air Freight, Inc.
Ohio: Airborne Coordinators, Inc.; Air Dispatch, Inc.; Air Lanes Service, Inc.
California: Airfreight Flower and Freight Traffic, Inc.; Air-Land Freight Consolidators, Inc.; Domestic Air Express.
Pennsylvania: Air Freightways; Peter A. Bernacki.
Texas: Cond. Laps.
Massachusetts: Inter City Air Freight Agency.
Illinois: Lifeshultz Air Freight.
Washington: Pacific Air Freight, Inc.
Mississippi: Twin Cities Air Service Company.

Pan Am Shows Cargoes Out of Miami Varied

MIAMI—An assortment of recent cargoes flown out of this bustling city has been collected by Pan American World Airways' Latin American Division. Worthy of mention are:

1. A total of 3,500 flower pots, weighing 9,635 pounds, flown to Havana for Compania de Horticultura Milleros. This was part of a 12,535-pound assortment of supplies and equipment for the consignee, including a 1,400 pound Crosley station wagon and 1,500 pounds of orchid post.
2. Eight 225-horsepower radial engines, each weighing 1,390 pounds, consigned to the Colombian Ministry of War at Bogota.
3. One hundred television sets and equipment, weighing 10,627 pounds, hauled to

San Paulo, Brazil. Shipped by the RCA Victor Company, Gloucester, New Jersey, the sets will be used by Brazilian Government officials and other outstanding citizens for reception of Sao Paulo's new TV station, the first in South America.

4. Twenty-five hundred pounds of household furnishings for Mrs. Maria M. Trujillo, wife of the Dominican Republic's president. Almost the same airfreighter were two race horses to be used for racing in Ciudad Trujillo.

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- 2 The *Co-Pilot*, a free directory of 400 airports in 26 states. Contains such data as grades of aviation gas handled, class or size of fields, hours during which service can be expected, etc.
- 3 New York State airport map and directory. Measures 20" x 21". Supplies all needed information concerning airports in that state.
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5 Periodic inspection record for maintenance of fire extinguishers. Certainly a handy chart for any firm with fire extinguishers on its premises. Don't forget: fire extinguishers are emergency equipment, and if they're not in working condition a lot of freight can go up in smoke.

6 Simple back number of the *American Import & Export Bulletin*, giving news of developments in the foreign trade industry. Covers Customs, Commerce, Agriculture, Treasury, and State Department thoroughly. Reports on changes in laws, rules, regulations, etc.

7 Official Civil Aeronautics Board regulations of international air freight forwarding. Complete text, covering definition, classification and exemption, limitations and conditions, letters of registration, insurance, and general data.

8 A handsome, eight-inch, plastic rule, also showing the metric scale on the reverse side. This is offered by a well-known freight forwarding firm. If you want more than one, please specify on coupon.

9 File-sized booklet designed and written for the purpose of taking the guesswork out of selecting and using corrugated and solid-fibre shipping cases. Includes the advantages, applications, composition, forms, properties, and sealing techniques of case sealing adhesives for hand or machine sealing operations. Illustrated.

10 Rope reference chart which gives specifications on manila, nylon, and sisal ropes. Measures 17"x22". It offers such data as rope diameter, circumference, approximate net weight per 100 feet, and working strength.

11 *American Foreign Trade Definitions*, a 32-page book of high value to shippers everywhere. Includes a chart showing the various steps taken from the time a shipment leaves the consignor to the moment it reaches the consignee. Produced and offered by one of the larger freight forwarding companies.

12 *Air Postal Service*, a 12-page reference book on air mail and air parcel post, offering tips as well as rate tables. Attractively put up and easy to use.

13 A new bulletin describing a 1,000-capacity hydraulic high-lift truck. Specifications and construction details are explained, with line drawings to show dimensional data.

14 A four-page illustrated description of three new-type fire extinguishers, explaining their functions and special uses. Gives complete information on each unit, including its characteristics.

15 If you're of a mind to show a 34-minute sound-strip film depicting the role mechanical handling has played in American industry since the first conveyor was installed in 1781, send in this coupon. We can arrange for you to borrow the movie, *Years to Command*, at no cost to you or your firm. Shows how, in many cases, materials-handling costs have been cut in half by systematic application of modern conveying equipment.

16 Tests on cargo aircraft are just as rigid as those on passenger planes. Here's an illustrated catalog offering a complete line of aircraft maintenance and service machines to fulfill test requirements of all systems and components for all aircraft. Only airline men need apply.

17 A six-page, three-color booklet describing the recently introduced Transporter 101, driver-led electric industrial truck. Contains complete specifications, photos, and illustrations of special features. Both pallet and platform types are included.

18 An attractive and valuable wall chart in color, showing the proper procedures in storing gunned tape, the use of automatic dispensers, and the application of gunned tape. Should be on the walls of all shipping departments. Illustrations tell the story in a glance.

19 *What Every Shipper Should Know*, a 24-page, fully illustrated manual devoted to proper packaging with sealing tape. Includes directions for sealing various types of packages—telescope cartons, soft wraps, irregular shapes, etc. Also contains essential excerpts of regulations covering parcel post, railway express, air express, and motor carrier.

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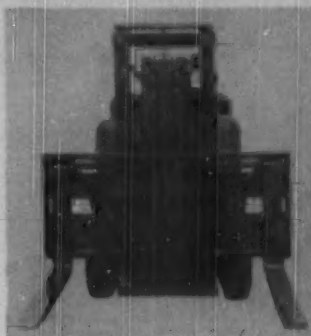
LYON - Raymond Corporation — A new hydraulic truck is designed to transport and position cable reels, paper rolls, and other materials on spools. One of these models, which has been used with small cable reels, is reported to have a capacity of 300 pounds. Opening between the base forks and elevating forks is 15 inches; elevating forks lift to 28 inches and lower to half that height. Actuation of the lifting mechanism is by a single-speed hand



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pump and hydraulic cylinder. The truck is equipped with two five-inch solid casters and two five-inch rigid casters.

Towmotor Corporation—The operator of a fork lift truck is enabled quickly and accurately to vary the distance between the two forks at any time by means of a conveniently located lever—a new development for faster and easier handling of materials. Hydraulically adjustable forks,



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which are primarily designed for fork lift trucks operating on close time schedules, normally are required to handle pallets or materials of different widths. Regulation of the distance between the forks without necessitating the operator leaving his seat is an important time-saver. The adjustment can be made even while the truck is in motion.

Automatic Transportation Company—The Transtractor 101, a new driver-led electric tractor, has bowed in. It is almost



New Automatic Transtractor

half a foot shorter than previous models. Second unit in Automatic's 101 line (see July AT). It features a re-designed power unit housing, which now is cylindrical instead of rectangular, cutting 5 1/2 inches off the Transtractor's length. Thus, aisle requirements and turning radius are lowered. Like the Transpector, the Transtractor is rugged and has a newly designed motor. It operates in both forward and reverse speeds, with the handle upright. Automatic says that "this engineering achievement is worth another foot when the unit is operating in tight quarters."

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AA at Bradley Field

WINDSOR LOCKS, CONN.—American Airlines has been authorized to serve Springfield, Massachusetts, through Bradley Field here, in line of Bureau Airport, Westfield, Massachusetts. According to word received from Washington, "it is obviously in the interest of economy for American to consolidate its ground facilities at Bradley Field." New England ship-pers, take note.

CAB Says No to Pan Am

Wash., D. C.—Pan American World Airways, which has been seeking authorization to operate a system of domestic East-West and North-South routes, has been turned down by the Civil Aeronautics Board. The CAB included in the denial the previously recommended New York-Miami route.

Parks Routes Divided

Wash., D. C.—Nullification of the certificate of public convenience and necessity issued to Parks Air Lines has resulted in the Civil Aeronautics Board's award of Parks' routes to Mid-Continent Airlines and Ozark Airlines. MCA has taken over the North Central portion, and Ozark, the Mississippi Valley and Great Lakes portion. The CAB said that "Parks has had ample chance to establish service" and that "the interest of the public precludes any further pampering of an air carrier that has repeatedly delayed using its authorization."

BOOKS

HOLY Year travel in the order of the day, and four highly recommended books fall right in line: *A Pilgrim's Guide to Rome*, by Harry Wootton (Frostline-Hall, Inc., 55 Fifth Avenue, New York; 200 pages; \$5.75); *So You're Going to Italy*, by Clara B. Langhain (Longhorn-Mifflin Company, 5 Park Street, Boston; 260 pages; \$5.00); *And So to Rome*, by Cecil Salazar (Massachusetts Company, 20 Fifth Avenue, New York; 134 pages; \$5.00); and *Footpaths in Italy*, by Norman Sutton (Rinehart and Company, Inc., 555 Madison Avenue, New York; 244 pages; \$5.00). All of the books are illustrated, particularly the Sutton book. While the Sutton and Roberts volumes are excellent texts for readers, the Wootton effort is frankly a guidebook specially prepared for the Holy Year. The Langhain book, revised to a Holy Year edition, lies somewhere between Sutton and Roberts on one hand, and Wootton on the other.

And here's another book by Norman Sutton: *Footpaths in Canada* (Rinehart and Company, Inc., 555 Madison Avenue, New York; 291 pages; \$4.50). Sutton here to the same style in this volume, doing his usual good job. Well-illustrated. . . . We recommend Helen Dunn Fish's *Invitation to England* (Jesse Washburn, Inc., 59 West 57th Street, New York; 120 pages; \$5.00). Good information for the traveler. . . . *AN About Austria*, by Virginia Crowl (Duff, Sloan and Pearson, 370 Madison Avenue, New York; 215 pages; \$5.50) is the first of the New Europe Guides. All the information you want about Austria. Foreward is by General Mark W. Clark. . . . *Newman's European Travel Guide*, by Harold Newman (Henry Holt and Company, Inc., 237 Fourth Avenue, New York; 122 pages; \$2.95) gives you that part of the world—that is, outside the Iron Curtain—between two covers. An intelligently arranged guide.

Year Trip Ahead, by Richard Joseph (Doubleday and Company, Inc., 14 West 40th Street, New York; 260 pages; \$5.00) ranges the world, offering facts, tips, recommendations, etc. A fine volume. . . . *The Stevens American*, a traveler's guide to the United

States, by Adam and Marjorie Stevens (Lippincott, Brown and Company, 34 Avenue Street, New York; 244 pages; \$5.00), is just the thing for those who travel by that route. . . . *America's First*, covers everything. . . . Another all-around book is Arthur C. Macle's *Exploring the Catskills* (Frank and Wagnalls Company, 120 East 50th Street, New York; 95 pages; \$2.50). Maps and illustrations are by Stephen J. Vothman. . . . And then there's *Key West, Florida*, sponsored by the Florida State Planning Board (Hastings House, 41 East 57th Street, New York; 120 pages; \$2.50), which we don't hesitate to recommend.

Bernardo Mathews, by Mary Johnson Treacy (Crown Publishers, 419 Fourth Avenue, New York; 260 pages; \$5.00) fills the bill in a Bernadine guide book. . . . *Marion Major's Norwegian Holiday* (Frank, Wagnalls and Company, 120 East 50th Street, New York; 260 pages; \$5.50) is just the thing for the Norway-bound air traveler. A handsome volume. . . . *The Land and People of Israel*, by Gold Hoffman (J. B. Lippincott Company, East Washington Square, Philadelphia; 212 pages; \$5.50) is another one of those handy new books on the young nation.

. . . *Henry Albert Phillips' Capstones in the Mountains of the Moon* (World Publishing Company, 550 East 57th Street, New York; 252 pages; \$5.00) is an intriguing book on the mountains of South Africa.

Then there's *Ernesto Torn's New Guide to Mexico* (Crown Publishers, 419 Fourth Avenue, New York; 270 pages; \$5.00) which surely leads you and authors neighbor on an olive platter. Loaded with information. . . . You ought to read *Brazil in America*, by Ralph Foster Ward (Columbia University Press, 2880 Broadway, New York; 260 pages; \$5.50). A fascinating book by an able historian. Recounts insight into one of America's most famous places. . . . *Sidney Freeman's West Point* (Columbia University Press, 2880 Broadway, New York; 384 pages; \$5.75), is an authoritative history of the United States Military Academy. Well-documented. . . . *Mexico—The Struggle for Peace and Honor*, by Frank Townsend (Alfred A. Knopf, 251 Madison Avenue, New York; 260 pages; \$5.50) is a better-than-good story of Twentieth Century Mexico. Should be read.

Handbook of Transportation, by Marvin L. Fair and Ernest W. Williams Jr. (Harper and Brothers, 45 East 33rd Street, New York; 757 pages; \$5.50) is a comprehensive volume covering every phase of transportation—air, sea, rail, highway, water, pipeline. Includes economics of transportation development, service, rates, and regulation, and problems of transportation policy. An important text. . . . *Sea Warfare, 1600-1945*, by Captain John Crowell, R.N. (Longmans, Green and Company, Inc., 65 Fifth Avenue, New York; 254 pages; \$5.00) supplies a concise history of naval operations in the last war. . . . We recommend Clifford Lindsey Alderman's new novel, *The Arch of Stars* (Appleton-Century-Crofts, Inc., 25 West 37th Street; 410 pages; \$5.50), an effective story of the early years of the American Revolution. Alderman, who is well-known in shipping circles, reverts to the eighteenth Century with complete authority, lending vigor to his story. Highly entertaining. . . . We also recommend Dick Groer's *Visibility* (Hastings House, 41 East 57th Street, New York; 276 pages; \$5.50). This is the author's personal story, which, incidentally, is the story of aviation itself. Enticing. . . . A book of photographs by Joyce and John Munch is always good. Their latest, *Grand Canyon* (Hastings House, 41 East 57th Street, New York; 181 pages; \$2.75), continues their series of high-quality books. Photos are excellent.

You can depend upon Thomas Wells, former vice president, Pacific-Alaska Division, Pan American World Airways, to put out something of value—and his book, *Air Transportation—Traffic and Management* (McGraw-Hill Book Company, 330 West 42nd Street, New York; 728 pages; \$5.00) fills the bill neatly. A fine survey of current problems and practices in air transportation and traffic management. Covers economics, revenue, and sales—both domestic and international. Illustrations, charts, maps, etc. A top-notch book. . . . Volume IV of *The Army Air Forces in World War II*, edited by W. F. Craven and J. L. Cate (University of Chicago Press, 5700 Ellis Avenue, Chicago; 686 pages; \$5.00), joins the three predecessor books as a masterpiece. This one is devoted to the Pacific War—Candahar to Saipan. A monumental work.

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International Cargo Rates

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- AF - Air France
- A - American Airlines
- AO - American Overseas
- B - British International Airways
- BC - British Commonwealth Pacific Airlines
- BO - British Overseas Airways Corp.
- CB - Chicago & Southern Air Lines
- C - Colonial Airlines
- E - Eastern Air Lines
- KA - KLM Royal Dutch Airlines
- NA - North American Airlines
- PA - Pan American Airways
- SA - Scandinavian Airlines
- SW - Swissair
- TA - TWA
- UA - United Airlines
- VA - Virgin Atlantic Airways
- WA - Western Airlines
- W - World Airways

Destination	Airport and Airlines	WATER (Sea Rate)				Crew
		1	2	3	4	
		1	2	3	4	
Asbury, Denmark.....	IDL AO ^a	1.17	.01	30	St Y	
"	IDL AO ^a	1.17	.01	30	St Y	
Aarhus, Denmark.....	IDL NO	1.10	.01	30	St Y	
"	IDL AO ^a	1.15	.01	30	St Y	
Albany, Ind.....	IDL EO	1.78	1.21	30	St Y	
"	BOA AO ^a	1.78	1.21	30	St Y	
"	IDL AO ^a	1.78	1.21	30	St Y	
"	IDL AO ^a	1.78	1.21	30	St W, Y	
Alfred, Ivory Coast.....	IDL AF	1.60	1.21	30	St M, W, Y	
"	BOA AF	1.60	1.21	30	St Y	
Åbo, Finland.....	IDL HS	1.51	.01	30	St Y	
"	IDL AO ^a	1.50	.01	30	St Y, Y	
"	BOA AO ^a	1.17	.01	30	St Y	
Aspen, Br. Guad. Coast.....	LGA P	1.64	1.18	30	St Y	
"	BOA P	1.51	1.14	30	St Y	
"	IDL BO	1.64	1.18	30	St M, T, Y, Y	
"	IDL AF	1.50	1.18	30	St Y	
"	BOA AF	1.50	1.18	30	St Y	
"	BOA AO ^a	1.77	1.18	30	St Y	
"	IDL AO ^a	1.80	1.18	30	St Y	
Atlix, Alaska, Russian.....	IDL AO ^a	1.50	1.00	30	St Y	
"	BOA AO ^a	1.90	1.00	30	St Y, Y	
"	LGA BO	1.50	1.01	30	St Y	
"	LGA TYP ^a	1.50	1.10	30	St Y	
"	IDL AO ^a	1.50	1.00	30	St Y	
"	BOA AO ^a	1.80	1.00	30	St Y	
"	IDL BO	1.40	1.10	30	St Y	
Atsugi, Japan.....	IDL AO ^a	2.64	1.00	30	St Y	
"	LGA P	2.00	1.00	30	St Y	
"	BOA P	2.00	1.00	30	St Y	

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- L-2 - Jones Aeronautical Transportation
- N - National Airlines
- NE - Northeast Airlines
- NW - Northwest Airlines
- P - Pan American World Airways and All Nations
- PA - Philippine Air Lines
- R - Reuben
- SE - Southeastern Airlines System
- SW - Southwest & West
- T - TWA Airways
- TS - Transair
- TA - Trans-Canada Air Lines
- TV - Transwestern Air Lines
- TV - Trans World Airlines
- U - United Air Lines
- W - Western Air Lines

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a Canadian Currency.

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INTERNATIONAL AIR CARGO RATE TABLES—Continued

Destination	Airport and Service	RATES (Per Ton)				Remarks	Destination	Airport and Service	RATES (Per Ton)				Remarks	Destination	Airport and Service	RATES (Per Ton)				Remarks
		42	43	44	45				42	43	44	45				42	43	44	45	
Atlanta, Ga.	LGA TW	1.44	1.58	1.72	1.86	Sa, M, T, W, F	Bombay, Conf'd.	LGA TW	1.72	1.86	2.00	2.14	Sa, F	Bombay, France	IDL AP	1.14	1.28	1.42	1.56	Di
"	DCA TW	1.48	1.62	1.76	1.90	"	"	IDL AP	1.76	1.90	2.04	2.18	"	"	IDL AP	1.18	1.32	1.46	1.60	Di
"	PHL TW	1.52	1.66	1.80	1.94	"	"	IDL AP	1.80	1.94	2.08	2.22	"	"	IDL AP	1.22	1.36	1.50	1.64	Di
"	PHL TW	1.56	1.70	1.84	1.98	"	"	IDL AP	1.84	1.98	2.12	2.26	"	"	IDL AP	1.26	1.40	1.54	1.68	Di
"	PHL TW	1.60	1.74	1.88	2.02	"	"	IDL AP	1.88	2.02	2.16	2.30	"	"	IDL AP	1.30	1.44	1.58	1.72	Di
"	PHL TW	1.64	1.78	1.92	2.06	"	"	IDL AP	1.92	2.06	2.20	2.34	"	"	IDL AP	1.34	1.48	1.62	1.76	Di
"	PHL TW	1.68	1.82	1.96	2.10	"	"	IDL AP	1.96	2.10	2.24	2.38	"	"	IDL AP	1.38	1.52	1.66	1.80	Di
"	PHL TW	1.72	1.86	2.00	2.14	"	"	IDL AP	2.00	2.14	2.28	2.42	"	"	IDL AP	1.42	1.56	1.70	1.84	Di
"	PHL TW	1.76	1.90	2.04	2.18	"	"	IDL AP	2.04	2.18	2.32	2.46	"	"	IDL AP	1.46	1.60	1.74	1.88	Di
"	PHL TW	1.80	1.94	2.08	2.22	"	"	IDL AP	2.08	2.22	2.36	2.50	"	"	IDL AP	1.50	1.64	1.78	1.92	Di
"	PHL TW	1.84	1.98	2.12	2.26	"	"	IDL AP	2.12	2.26	2.40	2.54	"	"	IDL AP	1.54	1.68	1.82	1.96	Di
"	PHL TW	1.88	2.02	2.16	2.30	"	"	IDL AP	2.16	2.30	2.44	2.58	"	"	IDL AP	1.58	1.72	1.86	2.00	Di
"	PHL TW	1.92	2.06	2.20	2.34	"	"	IDL AP	2.20	2.34	2.48	2.62	"	"	IDL AP	1.62	1.76	1.90	2.04	Di
"	PHL TW	1.96	2.10	2.24	2.38	"	"	IDL AP	2.24	2.38	2.52	2.66	"	"	IDL AP	1.66	1.80	1.94	2.08	Di
"	PHL TW	2.00	2.14	2.28	2.42	"	"	IDL AP	2.28	2.42	2.56	2.70	"	"	IDL AP	1.70	1.84	1.98	2.12	Di
"	PHL TW	2.04	2.18	2.32	2.46	"	"	IDL AP	2.32	2.46	2.60	2.74	"	"	IDL AP	1.74	1.88	2.02	2.16	Di
"	PHL TW	2.08	2.22	2.36	2.50	"	"	IDL AP	2.36	2.50	2.64	2.78	"	"	IDL AP	1.78	1.92	2.06	2.20	Di
"	PHL TW	2.12	2.26	2.40	2.54	"	"	IDL AP	2.40	2.54	2.68	2.82	"	"	IDL AP	1.82	1.96	2.10	2.24	Di
"	PHL TW	2.16	2.30	2.44	2.58	"	"	IDL AP	2.44	2.58	2.72	2.86	"	"	IDL AP	1.86	2.00	2.14	2.28	Di
"	PHL TW	2.20	2.34	2.48	2.62	"	"	IDL AP	2.48	2.62	2.76	2.90	"	"	IDL AP	1.90	2.04	2.18	2.32	Di
"	PHL TW	2.24	2.38	2.52	2.66	"	"	IDL AP	2.52	2.66	2.80	2.94	"	"	IDL AP	1.94	2.08	2.22	2.36	Di
"	PHL TW	2.28	2.42	2.56	2.70	"	"	IDL AP	2.56	2.70	2.84	2.98	"	"	IDL AP	1.98	2.12	2.26	2.40	Di
"	PHL TW	2.32	2.46	2.60	2.74	"	"	IDL AP	2.60	2.74	2.88	3.02	"	"	IDL AP	2.02	2.16	2.30	2.44	Di
"	PHL TW	2.36	2.50	2.64	2.78	"	"	IDL AP	2.64	2.78	2.92	3.06	"	"	IDL AP	2.06	2.20	2.34	2.48	Di
"	PHL TW	2.40	2.54	2.68	2.82	"	"	IDL AP	2.68	2.82	2.96	3.10	"	"	IDL AP	2.10	2.24	2.38	2.52	Di
"	PHL TW	2.44	2.58	2.72	2.86	"	"	IDL AP	2.72	2.86	3.00	3.14	"	"	IDL AP	2.14	2.28	2.42	2.56	Di
"	PHL TW	2.48	2.62	2.76	2.90	"	"	IDL AP	2.76	2.90	3.04	3.18	"	"	IDL AP	2.18	2.32	2.46	2.60	Di
"	PHL TW	2.52	2.66	2.80	2.94	"	"	IDL AP	2.80	2.94	3.08	3.22	"	"	IDL AP	2.22	2.36	2.50	2.64	Di
"	PHL TW	2.56	2.70	2.84	2.98	"	"	IDL AP	2.84	2.98	3.12	3.26	"	"	IDL AP	2.26	2.40	2.54	2.68	Di
"	PHL TW	2.60	2.74	2.88	3.02	"	"	IDL AP	2.88	3.02	3.16	3.30	"	"	IDL AP	2.30	2.44	2.58	2.72	Di
"	PHL TW	2.64	2.78	2.92	3.06	"	"	IDL AP	2.92	3.06	3.20	3.34	"	"	IDL AP	2.34	2.48	2.62	2.76	Di
"	PHL TW	2.68	2.82	2.96	3.10	"	"	IDL AP	2.96	3.10	3.24	3.38	"	"	IDL AP	2.38	2.52	2.66	2.80	Di
"	PHL TW	2.72	2.86	3.00	3.14	"	"	IDL AP	3.00	3.14	3.28	3.42	"	"	IDL AP	2.42	2.56	2.70	2.84	Di
"	PHL TW	2.76	2.90	3.04	3.18	"	"	IDL AP	3.04	3.18	3.32	3.46	"	"	IDL AP	2.46	2.60	2.74	2.88	Di
"	PHL TW	2.80	2.94	3.08	3.22	"	"	IDL AP	3.08	3.22	3.36	3.50	"	"	IDL AP	2.50	2.64	2.78	2.92	Di
"	PHL TW	2.84	2.98	3.12	3.26	"	"	IDL AP	3.12	3.26	3.40	3.54	"	"	IDL AP	2.54	2.68	2.82	2.96	Di
"	PHL TW	2.88	3.02	3.16	3.30	"	"	IDL AP	3.16	3.30	3.44	3.58	"	"	IDL AP	2.58	2.72	2.86	3.00	Di
"	PHL TW	2.92	3.06	3.20	3.34	"	"	IDL AP	3.20	3.34	3.48	3.62	"	"	IDL AP	2.62	2.76	2.90	3.04	Di
"	PHL TW	2.96	3.10	3.24	3.38	"	"	IDL AP	3.24	3.38	3.52	3.66	"	"	IDL AP	2.66	2.80	2.94	3.08	Di
"	PHL TW	3.00	3.14	3.28	3.42	"	"	IDL AP	3.28	3.42	3.56	3.70	"	"	IDL AP	2.70	2.84	2.98	3.12	Di
"	PHL TW	3.04	3.18	3.32	3.46	"	"	IDL AP	3.32	3.46	3.60	3.74	"	"	IDL AP	2.74	2.88	3.02	3.16	Di
"	PHL TW	3.08	3.22	3.36	3.50	"	"	IDL AP	3.36	3.50	3.64	3.78	"	"	IDL AP	2.78	2.92	3.06	3.20	Di
"	PHL TW	3.12	3.26	3.40	3.54	"	"	IDL AP	3.40	3.54	3.68	3.82	"	"	IDL AP	2.82	2.96	3.10	3.24	Di
"	PHL TW	3.16	3.30	3.44	3.58	"	"	IDL AP	3.44	3.58	3.72	3.86	"	"	IDL AP	2.86	3.00	3.14	3.28	Di
"	PHL TW	3.20	3.34	3.48	3.62	"	"	IDL AP	3.48	3.62	3.76	3.90	"	"	IDL AP	2.90	3.04	3.18	3.32	Di
"	PHL TW	3.24	3.38	3.52	3.66	"	"	IDL AP	3.52	3.66	3.80	3.94	"	"	IDL AP	2.94	3.08	3.22	3.36	Di
"	PHL TW	3.28	3.42	3.56	3.70	"	"	IDL AP	3.56	3.70	3.84	3.98	"	"	IDL AP	2.98	3.12	3.26	3.40	Di
"	PHL TW	3.32	3.46	3.60	3.74	"	"	IDL AP	3.60	3.74	3.88	4.02	"	"	IDL AP	3.02	3.16	3.30	3.44	Di
"	PHL TW	3.36	3.50	3.64	3.78	"	"	IDL AP	3.64	3.78	3.92	4.06	"	"	IDL AP	3.06	3.20	3.34	3.48	Di
"	PHL TW	3.40	3.54	3.68	3.82	"	"	IDL AP	3.68	3.82	3.96	4.10	"	"	IDL AP	3.10	3.24	3.38	3.52	Di
"	PHL TW	3.44	3.58	3.72	3.86	"	"	IDL AP	3.72	3.86	4.00	4.14	"	"	IDL AP	3.14	3.28	3.42	3.56	Di
"	PHL TW	3.48	3.62	3.76	3.90	"	"	IDL AP	3.76	3.90	4.04	4.18	"	"	IDL AP	3.18	3.32	3.46	3.60	Di
"	PHL TW	3.52	3.66	3.80	3.94	"	"	IDL AP	3.80	3.94	4.08	4.22	"	"	IDL AP	3.22	3.36	3.50	3.64	Di
"	PHL TW	3.56	3.70	3.84	3.98	"	"	IDL AP	3.84	3.98	4.12	4.26	"	"	IDL AP	3.26	3.40	3.54	3.68	Di
"	PHL TW	3.60	3.74	3.88	4.02	"	"	IDL AP	3.88	4.02	4.16	4.30	"	"	IDL AP	3.30	3.44	3.58	3.72	Di
"	PHL TW	3.64	3.78	3.92	4.06	"	"	IDL AP	3.92	4.06	4.20	4.34	"	"	IDL AP	3.34	3.48	3.62	3.76	Di
"	PHL TW	3.68	3.82	3.96	4.10	"	"	IDL AP	3.96	4.10	4.24	4.38	"	"	IDL AP	3.38	3.52	3.66	3.80	Di
"	PHL TW	3.72	3.86	4.00	4.14	"	"	IDL AP	4.00	4.14	4.28	4.42	"	"	IDL AP	3.42	3.56	3.70	3.84	Di
"	PHL TW	3.76	3.90	4.04	4.18	"	"	IDL AP	4.04	4.18	4.32	4.46	"	"	IDL AP	3.46	3.60	3.74	3.88	Di
"	PHL TW	3.80	3.94	4.08	4.22	"	"	IDL AP	4.08	4.22	4.36	4.50	"	"	IDL AP	3.50	3.64	3.78	3.92	Di
"	PHL TW	3.84	3.98	4.12	4.26	"	"	IDL AP	4.12	4.26	4.40	4.54	"	"	IDL AP	3.54	3.68	3.82	3.96	Di
"	PHL TW	3.88	4.02	4.16	4.30	"	"	IDL AP	4.16	4.30	4.44	4.58	"	"	IDL AP	3.58	3.72	3.86	4.00	Di
"	PHL TW	3.92	4.06	4.20	4.34	"	"	IDL AP	4.20	4.34	4.48	4.62	"	"	IDL AP	3.62	3.76	3.90	4.04	Di
"	PHL TW	3.96	4.10	4.24	4.38	"	"	IDL AP	4.24	4.38	4.52	4.66	"	"</						

INTERNATIONAL AIR CARGO RATE TABLES — Continued

[illegible]

INTERNATIONAL AIR CARRIER RATE TABLES - Continued

Destination	Airline	RATES (Per Month)				Destination	Airline	RATES (Per Month)				Destination	Airline	RATES (Per Month)			
		1st	2nd	3rd	4th			1st	2nd	3rd	4th			1st	2nd	3rd	4th
Canton, China	ACA	1.00	1.00	1.00	1.00	Hankow, China	MEMO	1.17	1.17	1.17	1.17	Hongkong, China	DCA	1.00	1.00	1.00	1.00
	BOA	1.00	1.00	1.00	1.00		CHS	1.17	1.17	1.17	1.17		LAX	1.00	1.00	1.00	1.00
	BOA	1.00	1.00	1.00	1.00		CHS	1.17	1.17	1.17	1.17		BOA	1.00	1.00	1.00	1.00
	BOA	1.00	1.00	1.00	1.00		CHS	1.17	1.17	1.17	1.17		BOA	1.00	1.00	1.00	1.00
	BOA	1.00	1.00	1.00	1.00		CHS	1.17	1.17	1.17	1.17		BOA	1.00	1.00	1.00	1.00
	BOA	1.00	1.00	1.00	1.00		CHS	1.17	1.17	1.17	1.17		BOA	1.00	1.00	1.00	1.00
	BOA	1.00	1.00	1.00	1.00		CHS	1.17	1.17	1.17	1.17		BOA	1.00	1.00	1.00	1.00
	BOA	1.00	1.00	1.00	1.00		CHS	1.17	1.17	1.17	1.17		BOA	1.00	1.00	1.00	1.00
	BOA	1.00	1.00	1.00	1.00		CHS	1.17	1.17	1.17	1.17		BOA	1.00	1.00	1.00	1.00
	BOA	1.00	1.00	1.00	1.00		CHS	1.17	1.17	1.17	1.17		BOA	1.00	1.00	1.00	1.00
Canton, China	ACA	1.00	1.00	1.00	1.00	Hankow, China	MEMO	1.17	1.17	1.17	1.17	Hongkong, China	DCA	1.00	1.00	1.00	1.00
	BOA	1.00	1.00	1.00	1.00		CHS	1.17	1.17	1.17	1.17		LAX	1.00	1.00	1.00	1.00
	BOA	1.00	1.00	1.00	1.00		CHS	1.17	1.17	1.17	1.17		BOA	1.00	1.00	1.00	1.00
	BOA	1.00	1.00	1.00	1.00		CHS	1.17	1.17	1.17	1.17		BOA	1.00	1.00	1.00	1.00
	BOA	1.00	1.00	1.00	1.00		CHS	1.17	1.17	1.17	1.17		BOA	1.00	1.00	1.00	1.00
	BOA	1.00	1.00	1.00	1.00		CHS	1.17	1.17	1.17	1.17		BOA	1.00	1.00	1.00	1.00
	BOA	1.00	1.00	1.00	1.00		CHS	1.17	1.17	1.17	1.17		BOA	1.00	1.00	1.00	1.00
	BOA	1.00	1.00	1.00	1.00		CHS	1.17	1.17	1.17	1.17		BOA	1.00	1.00	1.00	1.00
	BOA	1.00	1.00	1.00	1.00		CHS	1.17	1.17	1.17	1.17		BOA	1.00	1.00	1.00	1.00
	BOA	1.00	1.00	1.00	1.00		CHS	1.17	1.17	1.17	1.17		BOA	1.00	1.00	1.00	1.00
Canton, China	ACA	1.00	1.00	1.00	1.00	Hankow, China	MEMO	1.17	1.17	1.17	1.17	Hongkong, China	DCA	1.00	1.00	1.00	1.00
	BOA	1.00	1.00	1.00	1.00		CHS	1.17	1.17	1.17	1.17		LAX	1.00	1.00	1.00	1.00
	BOA	1.00	1.00	1.00	1.00		CHS	1.17	1.17	1.17	1.17		BOA	1.00	1.00	1.00	1.00
	BOA	1.00	1.00	1.00	1.00		CHS	1.17	1.17	1.17	1.17		BOA	1.00	1.00	1.00	1.00
	BOA	1.00	1.00	1.00	1.00		CHS	1.17	1.17	1.17	1.17		BOA	1.00	1.00	1.00	1.00
	BOA	1.00	1.00	1.00	1.00		CHS	1.17	1.17	1.17	1.17		BOA	1.00	1.00	1.00	1.00
	BOA	1.00	1.00	1.00	1.00		CHS	1.17	1.17	1.17	1.17		BOA	1.00	1.00	1.00	1.00
	BOA	1.00	1.00	1.00	1.00		CHS	1.17	1.17	1.17	1.17		BOA	1.00	1.00	1.00	1.00
	BOA	1.00	1.00	1.00	1.00		CHS	1.17	1.17	1.17	1.17		BOA	1.00	1.00	1.00	1.00
	BOA	1.00	1.00	1.00	1.00		CHS	1.17	1.17	1.17	1.17		BOA	1.00	1.00	1.00	1.00

INTERNATIONAL AIR CARGO RATE TABLES — Continued

Destination	Agent and Office	DATES (Sun Week)				Days	Destination	Agent and Office	DATES (Sun Week)				Days	Destination	Agent and Office	DATES (Sun Week)				Days
		23	24	25	26				23	24	25	26				23	24	25	26	
Kanaka, Polynes.	LGA P	1.37	1.40	1.43	1.46	Di	La Paz, Cent'd	BON P	1.37	1.40	1.43	1.46	Di	Labrador, Belgen	IDL S	1.37	1.40	1.43	1.46	Di
"	LAX P	1.37	1.40	1.43	1.46	Di	"	CHI P	1.37	1.40	1.43	1.46	Di	"	IDL S	1.37	1.40	1.43	1.46	Di
"	BRO P	1.37	1.40	1.43	1.46	Di	"	VIP P	1.37	1.40	1.43	1.46	Di	"	IDL S	1.37	1.40	1.43	1.46	Di
"	LGA P	1.37	1.40	1.43	1.46	Di	"	WFO P	1.37	1.40	1.43	1.46	Di	"	IDL S	1.37	1.40	1.43	1.46	Di
"	IDL P	1.37	1.40	1.43	1.46	Di	"	WFO P	1.37	1.40	1.43	1.46	Di	"	IDL S	1.37	1.40	1.43	1.46	Di
"	LGA P	1.37	1.40	1.43	1.46	Di	"	WFO P	1.37	1.40	1.43	1.46	Di	"	IDL S	1.37	1.40	1.43	1.46	Di
"	IDL P	1.37	1.40	1.43	1.46	Di	"	WFO P	1.37	1.40	1.43	1.46	Di	"	IDL S	1.37	1.40	1.43	1.46	Di
"	LGA P	1.37	1.40	1.43	1.46	Di	"	WFO P	1.37	1.40	1.43	1.46	Di	"	IDL S	1.37	1.40	1.43	1.46	Di
"	IDL P	1.37	1.40	1.43	1.46	Di	"	WFO P	1.37	1.40	1.43	1.46	Di	"	IDL S	1.37	1.40	1.43	1.46	Di
"	LGA P	1.37	1.40	1.43	1.46	Di	"	WFO P	1.37	1.40	1.43	1.46	Di	"	IDL S	1.37	1.40	1.43	1.46	Di
"	IDL P	1.37	1.40	1.43	1.46	Di	"	WFO P	1.37	1.40	1.43	1.46	Di	"	IDL S	1.37	1.40	1.43	1.46	Di
"	LGA P	1.37	1.40	1.43	1.46	Di	"	WFO P	1.37	1.40	1.43	1.46	Di	"	IDL S	1.37	1.40	1.43	1.46	Di
"	IDL P	1.37	1.40	1.43	1.46	Di	"	WFO P	1.37	1.40	1.43	1.46	Di	"	IDL S	1.37	1.40	1.43	1.46	Di
"	LGA P	1.37	1.40	1.43	1.46	Di	"	WFO P	1.37	1.40	1.43	1.46	Di	"	IDL S	1.37	1.40	1.43	1.46	Di
"	IDL P	1.37	1.40	1.43	1.46	Di	"	WFO P	1.37	1.40	1.43	1.46	Di	"	IDL S	1.37	1.40	1.43	1.46	Di
"	LGA P	1.37	1.40	1.43	1.46	Di	"	WFO P	1.37	1.40	1.43	1.46	Di	"	IDL S	1.37	1.40	1.43	1.46	Di
"	IDL P	1.37	1.40	1.43	1.46	Di	"	WFO P	1.37	1.40	1.43	1.46	Di	"	IDL S	1.37	1.40	1.43	1.46	Di
"	LGA P	1.37	1.40	1.43	1.46	Di	"	WFO P	1.37	1.40	1.43	1.46	Di	"	IDL S	1.37	1.40	1.43	1.46	Di
"	IDL P	1.37	1.40	1.43	1.46	Di	"	WFO P	1.37	1.40	1.43	1.46	Di	"	IDL S	1.37	1.40	1.43	1.46	Di
"	LGA P	1.37	1.40	1.43	1.46	Di	"	WFO P	1.37	1.40	1.43	1.46	Di	"	IDL S	1.37	1.40	1.43	1.46	Di

INTERNATIONAL AIR CARGO RATE TABLE—Continued

DATES (See Note)							DATES (See Note)							DATES (See Note)						
Destination	Aircraft	28	29	30	31	Days	Destination	Aircraft	28	29	30	31	Days	Destination	Aircraft	28	29	30	31	Days
Miami, Cont'd.	MIA	1.30	1.37	1.30	1.37	T, F	Milan, Italy	IDL	1.30	1.37	1.30	1.37	T, F	Milan, France	IDL	1.30	1.37	1.30	1.37	T, F
"	W	1.30	1.37	1.30	1.37	T, F	"	IDL	1.30	1.37	1.30	1.37	T, F	"	IDL	1.30	1.37	1.30	1.37	T, F
"	W	1.30	1.37	1.30	1.37	T, F	"	IDL	1.30	1.37	1.30	1.37	T, F	"	IDL	1.30	1.37	1.30	1.37	T, F
"	W	1.30	1.37	1.30	1.37	T, F	"	IDL	1.30	1.37	1.30	1.37	T, F	"	IDL	1.30	1.37	1.30	1.37	T, F
"	W	1.30	1.37	1.30	1.37	T, F	"	IDL	1.30	1.37	1.30	1.37	T, F	"	IDL	1.30	1.37	1.30	1.37	T, F
"	W	1.30	1.37	1.30	1.37	T, F	"	IDL	1.30	1.37	1.30	1.37	T, F	"	IDL	1.30	1.37	1.30	1.37	T, F
"	W	1.30	1.37	1.30	1.37	T, F	"	IDL	1.30	1.37	1.30	1.37	T, F	"	IDL	1.30	1.37	1.30	1.37	T, F
"	W	1.30	1.37	1.30	1.37	T, F	"	IDL	1.30	1.37	1.30	1.37	T, F	"	IDL	1.30	1.37	1.30	1.37	T, F
"	W	1.30	1.37	1.30	1.37	T, F	"	IDL	1.30	1.37	1.30	1.37	T, F	"	IDL	1.30	1.37	1.30	1.37	T, F
"	W	1.30	1.37	1.30	1.37	T, F	"	IDL	1.30	1.37	1.30	1.37	T, F	"	IDL	1.30	1.37	1.30	1.37	T, F
"	W	1.30	1.37	1.30	1.37	T, F	"	IDL	1.30	1.37	1.30	1.37	T, F	"	IDL	1.30	1.37	1.30	1.37	T, F
"	W	1.30	1.37	1.30	1.37	T, F	"	IDL	1.30	1.37	1.30	1.37	T, F	"	IDL	1.30	1.37	1.30	1.37	T, F
"	W	1.30	1.37	1.30	1.37	T, F	"	IDL	1.30	1.37	1.30	1.37	T, F	"	IDL	1.30	1.37	1.30	1.37	T, F
"	W	1.30	1.37	1.30	1.37	T, F	"	IDL	1.30	1.37	1.30	1.37	T, F	"	IDL	1.30	1.37	1.30	1.37	T, F
"	W	1.30	1.37	1.30	1.37	T, F	"	IDL	1.30	1.37	1.30	1.37	T, F	"	IDL	1.30	1.37	1.30	1.37	T, F
"	W	1.30	1.37	1.30	1.37	T, F	"	IDL	1.30	1.37	1.30	1.37	T, F	"	IDL	1.30	1.37	1.30	1.37	T, F
"	W	1.30	1.37	1.30	1.37	T, F	"	IDL	1.30	1.37	1.30	1.37	T, F	"	IDL	1.30	1.37	1.30	1.37	T, F
"	W	1.30	1.37	1.30	1.37	T, F	"	IDL	1.30	1.37	1.30	1.37	T, F	"	IDL	1.30	1.37	1.30	1.37	T, F
"	W	1.30	1.37	1.30	1.37	T, F	"	IDL	1.30	1.37	1.30	1.37	T, F	"	IDL	1.30	1.37	1.30	1.37	T, F
"	W	1.30	1.37	1.30	1.37	T, F	"	IDL	1.30	1.37	1.30	1.37	T, F	"	IDL	1.30	1.37	1.30	1.37	T, F
"	W	1.30	1.37	1.30	1.37	T, F	"	IDL	1.30	1.37	1.30	1.37	T, F	"	IDL	1.30	1.37	1.30	1.37	T, F
"	W	1.30	1.37	1.30	1.37	T, F	"	IDL	1.30	1.37	1.30	1.37	T, F	"	IDL	1.30	1.37	1.30	1.37	T, F
"	W	1.30	1.37	1.30	1.37	T, F	"	IDL	1.30	1.37	1.30	1.37	T, F	"	IDL	1.30	1.37	1.30	1.37	T, F
"	W	1.30	1.37	1.30	1.37	T, F	"	IDL	1.30	1.37	1.30	1.37	T, F	"	IDL	1.30	1.37	1.30	1.37	T, F
"	W	1.30	1.37	1.30	1.37	T, F	"	IDL	1.30	1.37	1.30	1.37	T, F	"	IDL	1.30	1.37	1.30	1.37	T, F
"	W	1.30	1.37	1.30	1.37	T, F	"	IDL	1.30	1.37	1.30	1.37	T, F	"	IDL	1.30	1.37	1.30	1.37	T, F
"	W	1.30	1.37	1.30	1.37	T, F	"	IDL	1.30	1.37	1.30	1.37	T, F	"	IDL	1.30	1.37	1.30	1.37	T, F
"	W	1.30	1.37	1.30	1.37	T, F	"	IDL	1.30	1.37	1.30	1.37	T, F	"	IDL	1.30	1.37	1.30	1.37	T, F
"	W	1.30	1.37	1.30	1.37	T, F	"	IDL	1.30	1.37	1.30	1.37	T, F	"	IDL	1.30	1.37	1.30	1.37	T, F
"	W	1.30	1.37	1.30	1.37	T, F	"	IDL	1.30	1.37	1.30	1.37	T, F	"	IDL	1.30	1.37	1.30	1.37	T, F
"	W	1.30	1.37	1.30	1.37	T, F	"	IDL	1.30	1.37	1.30	1.37	T, F	"	IDL	1.30	1.37	1.30	1.37	T, F
"	W	1.30	1.37	1.30	1.37	T, F	"	IDL	1.30	1.37	1.30	1.37	T, F	"	IDL	1.30	1.37	1.30	1.37	T, F
"	W	1.30	1.37	1.30	1.37	T, F	"	IDL	1.30	1.37	1.30	1.37	T, F	"	IDL	1.30	1.37	1.30	1.37	T, F
"	W	1.30	1.37	1.30	1.37	T, F	"	IDL	1.30	1.37	1.30	1.37	T, F	"	IDL	1.30	1.37	1.30	1.37	T, F
"	W	1.30	1.37	1.30	1.37	T, F	"	IDL	1.30	1.37	1.30	1.37	T, F	"	IDL	1.30	1.37	1.30	1.37	T, F
"	W	1.30	1.37	1.30	1.37	T, F	"	IDL	1.30	1.37	1.30	1.37	T, F	"	IDL	1.30	1.37	1.30	1.37	T, F
"	W	1.30	1.37	1.30	1.37	T, F	"	IDL	1.30	1.37	1.30	1.37	T, F	"	IDL	1.30	1.37	1.30	1.37	T, F
"	W	1.30	1.37	1.30	1.37	T, F	"	IDL	1.30	1.37	1.30	1.37	T, F	"	IDL	1.30	1.37	1.30	1.37	T, F
"	W	1.30	1.37	1.30	1.37	T, F	"	IDL	1.30	1.37	1.30	1.37	T, F	"	IDL	1.30	1.37	1.30	1.37	T, F
"	W	1.30	1.37	1.30	1.37	T, F	"	IDL	1.30	1.37	1.30	1.37	T, F	"	IDL	1.30	1.37	1.30	1.37	T, F
"	W	1.30	1.37	1.30	1.37	T, F	"	IDL	1.30	1.37	1.30	1.37	T, F	"	IDL	1.30	1.37	1.30	1.37	T, F
"	W	1.30	1.37	1.30	1.37	T, F	"	IDL	1.30	1.37	1.30	1.37	T, F	"	IDL	1.30	1.37	1.30	1.37	T, F
"	W	1.30	1.37	1.30	1.37	T, F	"	IDL	1.30	1.37	1.30	1.37	T, F	"	IDL	1.30	1.37	1.30	1.37	T, F
"	W	1.30	1.37	1.30	1.37	T, F	"	IDL	1.30	1.37	1.30	1.37	T, F	"	IDL	1.30	1.37	1.30	1.37	T, F
"	W	1.30	1.37	1.30	1.37	T, F	"	IDL	1.30	1.37	1.30	1.37	T, F	"	IDL	1.30	1.37	1.30	1.37	T, F
"	W	1.30	1.37	1.30	1.37	T, F	"	IDL	1.30	1.37	1.30	1.37	T, F	"	IDL	1.30	1.37	1.30	1.37	T, F
"	W	1.30	1.37	1.30	1.37	T, F	"	IDL	1.30	1.37	1.30	1.37	T, F	"	IDL	1.30	1.37	1.30	1.37	T, F
"	W	1.30	1.37	1.30	1.37	T, F	"	IDL	1.30	1.37	1.30	1.37	T, F	"	IDL	1.30	1.37	1.30	1.37	T, F
"	W	1.30	1.37	1.30	1.37	T, F	"	IDL	1.30	1.37	1.30	1.37	T, F	"	IDL	1.30	1.37	1.30	1.37	T, F
"	W	1.30	1.37	1.30	1.37	T, F	"	IDL	1.30	1.37	1.30	1.37	T, F	"	IDL	1.30	1.37	1.30	1.37	T, F
"	W	1.30	1.37	1.30	1.37	T, F	"	IDL	1.30	1.37	1.30	1.37	T, F	"	IDL	1.30	1.37	1.30	1.37	T, F
"	W	1.30	1.37	1.30	1.37	T, F	"	IDL	1.30	1.37	1.30	1.37	T, F	"	IDL	1.30	1.37	1.30	1.37	T, F
"	W	1.30	1.37	1.30	1.37	T, F	"	IDL	1.30	1.37	1.30	1.37	T, F	"	IDL	1.30	1.37	1.30	1.37	T, F
"	W	1.30	1.37	1.30	1.37	T, F	"	IDL	1.30	1.37	1.30	1.37	T, F	"	IDL	1.30	1.37	1.30	1.37	T, F
"	W	1.30	1.37	1.30	1.37	T, F	"	IDL	1.30	1.37	1.30	1.37	T, F	"	IDL	1.30	1.37	1.30	1.37	T, F
"	W	1.30	1.37	1.30	1.37	T, F	"	IDL	1.30	1.37	1.30	1.37	T, F	"	IDL	1.30	1.37	1.30	1.37	T, F
"	W	1.30	1.37	1.30	1.37	T, F	"	IDL	1.30	1.37	1.30	1.37	T, F	"	IDL	1.30	1.37	1.30	1.37	T, F
"	W	1.30	1.37	1.30	1.37	T, F	"	IDL	1.30	1.37	1.30	1.37	T, F	"	IDL	1.30	1.37	1.30	1.37	T, F
"	W	1.30	1.37	1.30	1.37	T, F	"	IDL	1.30	1.37	1.30	1.37	T, F	"	IDL	1.30	1.37	1.30	1.37	T, F
"	W	1.30	1.37	1.30	1.37	T, F	"	IDL	1.30	1.37	1.30	1.37	T, F	"	IDL	1.30	1.37	1.30	1.37	T, F
"	W	1.30	1.37	1.30	1.37	T, F	"	IDL	1.30	1.37	1.30	1.37	T, F	"	IDL	1.30	1.37	1.30	1.37	T, F
"	W	1.30	1.37	1.30	1.37	T, F	"	IDL	1.30	1.37	1.30	1.37	T, F	"	IDL	1.30	1.37	1.30	1.37	T, F
"	W	1.30	1.37	1.30	1.37	T, F	"	IDL	1.30	1.37	1.30	1.37	T, F	"	IDL	1.30	1.37	1.30	1.37	T, F
"	W	1.30	1.37	1.30	1.37	T, F	"	IDL	1.30	1.37	1.30	1.37	T, F	"	IDL	1.30	1.37	1.30	1.37	T, F
"	W	1.30	1.37	1.30	1.37	T, F	"	IDL	1.30	1.37	1.30	1.37	T, F	"	IDL	1.30	1.37	1.30	1.37	T, F
"	W	1.30	1.37	1.30	1.37	T, F	"	IDL	1.30	1.37	1.30	1.37	T, F	"	IDL	1.30	1.37	1.30	1.37	T, F
"	W	1.30	1.37	1.30	1.37	T, F	"	IDL	1.30	1.37	1.30	1.37	T, F	"	IDL	1.30	1.37	1.30	1.37	T, F
"	W	1.30	1.37	1.30	1.37	T, F	"	IDL	1.30	1.37	1.30	1.37	T, F	"	IDL	1.30	1.37	1.30	1.37	T, F
"	W	1.30	1.37	1.30	1.37	T, F	"	IDL	1.30	1.37	1.30	1.37	T, F	"	IDL	1.30	1.37	1.30	1.37	T, F
"	W	1.30	1.37	1.30	1.37	T, F	"	IDL	1.30	1.37	1.30	1.37	T, F	"	IDL	1.30	1.37	1.30	1.37	T, F
"	W	1.30	1.37	1.30	1.37	T, F	"	IDL	1.30	1.37	1.30	1.37	T, F	"	IDL	1.30	1.37	1.30	1.37	T, F
"	W	1.30	1.37	1.30	1.37	T, F	"	IDL	1.30	1.37	1.30	1.37	T, F	"	IDL	1.30	1.37	1.30	1.37	T, F
"	W	1.30	1.37	1.30	1.37	T, F	"	IDL	1.30	1.37	1.30	1.37	T, F	"	IDL	1.30	1.37	1.30	1.37	T, F
"	W	1.30	1.37	1.30	1.37	T, F	"	IDL	1.3											

INTERNATIONAL AIR CARRIER RATE TABLE—Continued

[illegible]

GUEST EDITORIAL

(Continued from Page 3)

We are endeavoring to instill in the minds of our shippers and connecting carriers the idea that nearly anything can be shipped via Frontier and that we are anxious to provide the very highest type service to all shippers regardless of the volume of their traffic. We feel that this policy will develop additional traffic and will contribute to development of the air cargo industry and the communities we serve.

U. S. OVERSEAS AIR CARGO

(Continued from Page 3)

and total air imports. Table 14 (next month) summarizes the trends in the movement of international air cargo (excluding mail) to and from those ports during 1947, 1948 and the first eight months of 1949.

That table shows that the tonnage of combined exports and imports during 1948 increased 17.8 percent at La Guardia Field, and 24 percent at Miami International Airport. For the two airports combined, the corresponding increase was 22.3 percent. By way of comparison, the total United States trade by air at all airports increased 81.3 percent in 1947 over 1946. At both La Guardia Field and Miami International Airport, the 1948 increase in imports was much larger than the increase in exports. For the two airports combined, the tonnage of imports increased 35.8 percent in 1948 over 1947, compared with a rise of 18.1 percent in exports. Again for purposes of comparison, it may be noted that total United States air imports at all airports during 1947 increased 42.3 percent over those in 1946, while the corresponding increase in total United States air exports in 1947 was 94.4 percent. Thus it is evident that the rate of annual increase in United States imports by air declined only moderately in 1948, while the corresponding rate for air exports fell very sharply. The data shown in Table 14 for the first eight months of 1949 indicate increases in air imports over 1948 levels during several months, decreases in air imports in May and June, and a number of decreases in the monthly volume of air exports in 1949 as compared with corresponding periods in 1948.

While the data reported in Table 14 are not strictly comparable with Census data (as indicated by relatively small differences in figures for exports or imports during certain months in 1947), they may be used as a basis for a rough estimate of total foreign trade in 1948, on the assumption that over-all trends at the two leading airports are indica-

(Continued on Page 32)

SECOND QUARTER

Continent and country	Exports		Imports	
	Value (Dollars)	Shipping wt. (Pounds)	Value (Dollars)	Shipping wt. (Pounds)
North America:				
Canada	1,116,655	508,449	1,879,867	1,492,994
Mexico	7,121,434	1,693,364	798,770	98,107
Central America	2,138,740	787,936	310,620	261,090
Cuba	4,517,655	2,313,566	262,906	310,303
Other North America	1,131,973	581,736	264,267	214,358
Total, North America	16,027,086	5,465,243	3,296,430	2,366,732
South America:				
Colombia	2,589,343	731,294	181,022	24,793
Venezuela	2,907,729	803,220	316,420	13,862
Brazil	8,125,817	622,965	761,096	44,326
Argentina	3,449,191	264,663	74,962	9,915
Other South America	1,391,260	322,900	158,973	27,636
Total, South America	15,241,345	2,845,122	1,492,365	129,462
Europe:				
Sweden	2,027,055	161,067	115,790	8,199
United Kingdom	1,138,385	124,974	849,356	23,385
Netherlands	430,312	56,790	469,052	11,730
Belgium and Luxembourg	3,677,199	247,031	183,286	7,578
France	1,174,344	98,309	471,490	27,016
Switzerland	1,303,431	86,143	9,804,667	67,750
Union of Soviet Socialist Republics	4,705	1,615	2,961,333	9,167
Other Europe	1,861,254	267,117	969,100	75,303
Total, Europe	12,177,655	1,166,596	15,521,067	230,157
Asia:				
Turkey	79,301	6,517	207,361	1,435
India and Pakistan	2,191,268	71,173	72,194	1,977
Thailand	69,650	7,718	259,399	2,841
Philippines, Republic of	1,738,797	102,966	70,310	5,342
China	264,879	109,066	111,696	5,864
Other Asia	858,451	86,264	449,556	12,304
Total, Asia	5,313,346	284,204	1,161,320	29,313
Australia, New Zealand and Oceania, Total	298,961	42,353	13,855	13,056
Africa:				
Egypt	395,147	49,922	306,261	18,947
Belgian Congo	27,520	2,667	15,251	151
Union of South Africa	179,826	21,813	215,373	534
Other Africa	122,812	19,665	14,276	988
Total, Africa	695,305	94,077	551,161	20,621
Grand total	49,604,248	10,367,694	21,996,398	2,779,330

THIRD QUARTER

Continent and country	Exports		Imports	
	Value (Dollars)	Shipping wt. (Pounds)	Value (Dollars)	Shipping wt. (Pounds)
North America:				
Canada	1,825,179	273,479	525,614	217,723
Mexico	5,685,909	1,554,143	543,749	82,734
Central America	1,975,167	1,006,173	90,546	41,902
Cuba	4,370,093	2,263,896	278,091	1,853,449
Other North America	1,170,265	501,080	378,145	213,377
Total, North America	14,476,643	5,830,771	1,816,118	2,468,745
South America:				
Colombia	1,466,133	308,267	190,717	37,177
Venezuela	2,526,832	927,401	398,138	17,880
Brazil	3,417,080	481,739	726,791	50,877
Argentina	3,096,795	339,394	133,741	8,871
Other South America	1,249,235	211,446	125,377	29,920
Total, South America	11,747,075	2,468,260	1,562,742	144,680
Europe:				
Sweden	1,306,030	117,231	196,154	7,979
United Kingdom	1,086,030	131,796	745,181	51,422
Netherlands	701,091	97,656	363,129	16,211
Belgium and Luxembourg	3,407,024	256,900	141,104	15,191

(Continued on Page 34)

PROPER PACKAGING

(Continued from Page 9)

There is no justification for a shipper believing that any sort of a container can be used when shipping by air. The use of wood, paper, plastics, glass and metal containers, and the sealing thereof, should be appropriate in all respects. The relatively high freight rates for air cargo shipments emphasize the need for lightweight containers. A complete emphasis on low weight is, however, only appropriate when no surface carrier is used in connection with air transport. If commercial surface carriers are used to transport the merchandise to and from the air terminals, the packaging must also be in accord-

ance with their standards.

Because of the stress placed on the fact that heavy crating is not necessary in air shipments, much flimsy packaging finds its way into air terminals, and the problem of inappropriate packaging is ever present with air freight handlers. This often necessitates reinforcing or repacking with consequent expensive delay.

The ideal container for air cargo, as determined by air cargo shippers and airline traffic men, is one that is lightweight, inexpensive, shock absorbent, affords maximum protection against pilferage, is well insulated against heat and cold, provides easy efficient sealing, has the ability to take multi-color printing, is reusable, and requires little stor-

age space. The development of packaging possessing one or several of these attributes is particularly advantageous to air freight. The size of the package should be kept as small as possible to permit hand loading and unloading, although improved handling equipment is rapidly reducing this problem.

Each commodity has its own peculiar container problem. Radio tubes and delicate airplane parts and instruments require special internal suspension and extra careful packaging to minimize or eliminate shock. Some products must be ventilated, whereas, others have to be kept at a constant temperature. These extremes illustrate the opportunities for improved packaging.

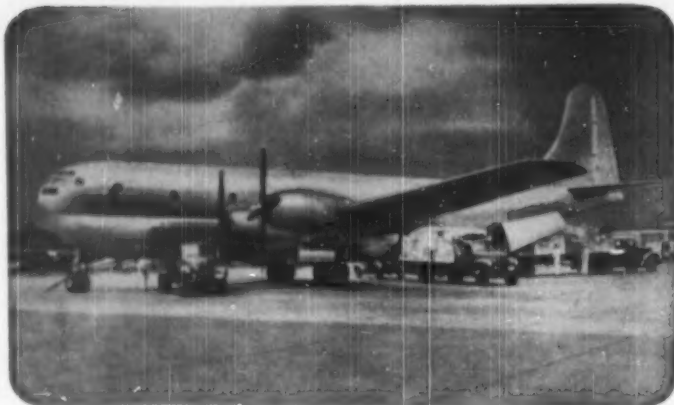
The weight of air shipments can usually be significantly lowered if the proper package is used. This is possible because air commodities are not subject to the severe shocks that occur in surface transportation. Light weight but adequate packaging should be the first consideration of the air line shipper. Although lightness of shipping containers is not the only factor in determining the correct package for air freight, it is an important cost saving opportunity factor. There are many examples of over-packaging of air shipments. An extreme example is that of a delicate electrical device which weighed less than one ounce and which was originally shipped in a seven pound package. It was repacked in cotton and placed in a paperbox about the size of a package of cigarettes. The instrument arrived at its destination via air in perfect condition.

In addition to the lightweight packaging feature, containers must have adequate strength. The package should be rigid and have sufficient cushion protection against outside shocks and impacts. The hollow wall formation of corrugated board has proved to be one good type of shock absorber. Extremely fragile items, however, need the added protection of sponge rubber or some equally effective shock absorbing material.

Packages must also be sufficiently sturdy to provide protection against compression (in the case of stacking packages on one another), changes in atmospheric pressure at different altitudes, high and low temperatures, changes in relative humidity, and turbulent air.

Legible package-marking speeds air freight shipments. Faulty marking is expensive. This, of course, applies to

Air Cargo Insurance



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shipments by all types of carriers. Time losses caused by faulty marking of packages may offset the airport-to-airport speed advantage of air service. Markings on packages should be clear, distinct and permanently affixed, preferably on two sides.

Transporting commodities via air has broadened the possibilities of combining effective advertising with packaging. Many shippers are aware that packages, specially labeled or printed, emphasizing the significance of air speed, are creating new consumer interest. Therefore, they want containers on which they can advertise their name, the name of their product, and the fact that it was shipped by air. This is possible because via air, the outer wrapping of packaged commodities can often be eliminated, and the product can be delivered to the consumer in the same lightweight, exterior package that was used in-transit. This phase of combining advertising with container design is an important aspect of air packaging.

Prepackaging of commodities in individual consumer-type containers, consumer education to the advantages of buying airborne items, special displays, and the separation of airborne merchandise from all other goods, are new merchandising procedures that can help create demand. Shipments of large orders in a container too heavy to handle, may be repacked in smaller ready-to-use consumer size packages. This may mean a wider market for manufacturers, distributors, wholesalers, and retailers. In addition, the smaller sized consumer packages give the shipper the best opportunity for that very important advertising and sales medium—brand identification.

Packages fabricated from various types of material, including wood, glass, fibreboard, plastic, etc., have been used successfully in air freight shipment. For example, wirebound box manufacturers have developed a lightweight container for greater flexibility and easier handling. The object of this container is to provide a wirebound unit for commodities that cannot be adequately flown in less stable containers. Transparent packages and combinations of plastic films and paper or paperboard have been adopted successfully in shipping prepackaged producer-to-consumer commodities. A combined fibreboard and plexiglass air shipping container, used extensively in the shipment of fish, has reduced packaging weight from three pounds of packaging for every pound of fish (as needed for surface transportation) to one pound of packaging for every 10 pounds of fish.

According to recommendations of the Working Group on Civil Transport Aircraft Prototype, Civil Transport Aircraft Evaluation and Development

ALL-FREIGHT PLANES DAILY!*



DC-4[†] FREIGHTER SERVICE

Between

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Board, the type of aircraft most needed to develop air cargo is a long-haul airfreighter capable of carrying a minimum of 15 tons of payload for a non-stop flight of 2,000 miles at an average speed from start to stop of 300 miles an hour. This plane should be able to operate from a 4,000 foot airfield to permit using relatively small airports. It should also have a cargo floor at truck bed height to expedite loading and unloading. The estimated direct operating cost of this freighter is 3.75 cents per ton mile. New planes, specifically designed to haul commercial cargo, will aid in the achievement of superior performance at lower cost.

The only aircraft designed specifically for all-cargo operations are being built for the military service. Commercial air freight lines in the United States utilize planes originally designed to carry both passengers and cargo, principally the C-46 and the C-54. The table on this page gives comparative data on a C-54 (or DC-4) and an average-size box car.

As improved aircraft and operating techniques are developed, air freight operating costs will decrease and the service will be used by an increasing number of shippers. With lower costs and facilities more closely adapted to shippers' needs, a greater variety of goods will be candidates for air cargo movement. A cargo sales manager of one of the leading air freight carriers stated that "practically every business in the United States has some product or by-product which could be sent by air to the economic advantage of that business."

While it is recognized that the air freight industry may fluctuate with the general economic conditions, it is definitely a growth industry that is here to stay. Recent government estimates indicate that the domestic air cargo potential, at rates of 14 or 15 cents per ton-mile, is more than a billion ton-miles annually. In this prognostication lies the opportunity for progressive container manufacturers to contribute and, at the same time, attain stature and profit for their own operation.

	DC-4	Average Box Car
Inside length	50 feet	40 ft. 6 in.
Height	6 ft. 8 in.	8 ft. 8 in.
Width	8 ft. 8 in.	8 ft. 6 in.
Door	7 ft. 11 in. x 5 ft. 7 in.	6 ft. x 7 ft. 11 in.
Cubic capacity	3,200 cubic feet	2,900 cubic feet
Speed	205 MPH (average)	15.7 MPH (average)

AIR EXPRESS vs. RY. EXPRESS

(Continued from Page 7)

air transport. These tests were made to determine whether the fish shipped by one means of transport maintained their freshness better in storage than those shipped by the other method.

Temperature control varied between the three types of air transport shipping containers. Temperature of fish and other pertinent data are given in Table 1. A total of 13 shipments of one container each were made with type A containers. Of these, 11 containers held the full 40 pounds of fish and two containers less than 40 pounds. Nine shipments were made with containers of fish chilled to 38°F. or less (Table 1). The average temperature of these fish was 35°F. at the time of packing. Two shipments were made in which the fish had been chilled to only 41°F. and 40°F., respectively before packaging. By using larger quantities of dry ice than for the other shipments, it was possible to maintain the temperature of these fish very near their starting temperature without freezing them. In two shipments, less than 40 pounds of fish were packed in each container, and the temperature rise was higher than when the full 40 pounds were packed.

A total of four type B containers were used. (Table 1.) In two shipments, where the maximum amount of dry ice, approximately six pounds, was used, the top layer of fish was frozen solid on arrival.

A total of seven type C containers were used. Five shipments were made with the full 40 pounds of fish chilled to 39°F. or lower. (Table 1.) The average temperature of the fish at the time of packing was 35°F. When only 20 pounds of fish were shipped in a container, the temperature rise was somewhat greater. A container having 1½ inches of insulation instead of one inch was used in one shipment. The temperature rise was about two-thirds that found in the containers having one inch of insulation.

The temperature of the fish shipped by railway express averaged 34°F. and never exceeded 38°F. at the time of arrival. In all shipments, the fish were well covered with crushed ice on arrival at College Park.

The results of the taste tests are presented in Table 2 and show that the differences in freshness between fish shipped by air transport and by railway express were small. The judges were not always in agreement but there appeared to be a small average difference in favor of the fish transported by air. The majority of the differences were classified as "slight," some as "moder-

Table 1.—Temperature and related data for air shipments of fish from Florida to College Park, Maryland

Container	Number of Shipments	Pounds of Fish Packed	Pounds of Dry Ice Used per Container	Temperature of Fish, °F.			Rise in Temperature per Hour of Packed Time, °F.			
				At Time Packed	At End of Trip			Top Layer	Middle Layer	Bottom Layer
					Top Layer	Middle Layer	Bottom Layer			
A	9	40	7	35	41	43	44	0.4	0.3	0.5
B	1	30	6	38	31	44	49	0.0	0.4	0.7
	1	30	none	38	39	41	44	0.9	0.9	1.1
	1	30	3.5	38	39	47	50	1.3	0.9	1.4
C	1	38	6	38	31	34	35	0.9	0.9	0.9
	5	40	none	38	50	47	48	1.0	0.8	0.9

Table 2.—The number of individuals on taste panel and degree of difference expressed in freshness of comparable samples of fish on day of arrival of shipments at College Park, Maryland

Shipment Number	Name	Difference in Freshness					
		In Favor of Air Transport			In Favor of Railway Express		
		Slight	Moderate	Pronounced	Slight	Moderate	Pronounced
Spanish Mackerel:							
2M	Spanish Mackerel, 200 lbs.	2	2	2	0	0	0
4M	Spanish Mackerel, 400 lbs.	2	2	1	0	0	0
5M	Spanish Mackerel, 500 lbs.	1	2	0	0	2	0
7M	Spanish Mackerel, 700 lbs.	2	1	1	0	1	0
8M	Spanish Mackerel, 800 lbs.	0	1	0	0	2	0
Total		5	8	4	0	3	0
Spotted Sea Trout:							
1T	Spotted Sea Trout, 100 lbs.	1	2	1	0	1	0
2T	Spotted Sea Trout, 200 lbs.	2	2	1	0	1	0
3T	Spotted Sea Trout, 300 lbs.	1	2	1	0	0	0
4T	Spotted Sea Trout, 400 lbs.	4	0	1	0	0	0
5T	Spotted Sea Trout, 500 lbs.	4	0	0	0	0	0
6T	Spotted Sea Trout, 600 lbs.	4	0	0	0	0	0
Total		17	7	4	0	2	0
White Sea Trout:							
1T	White Sea Trout, 100 lbs.	2	2	1	0	0	0
2T	White Sea Trout, 200 lbs.	2	2	0	0	1	0
Total		4	4	1	0	1	0
Fumpnose:							
1F	Fumpnose, 100 lbs.	1	2	1	0	1	0
Red Snapper:							
1R	Red Snapper, 100 lbs.	2	1	0	0	0	0

Freshness of comparable samples was scored on a numerical basis from 2 to 10, by two-unit intervals. Fresh fish received a score of 10. The data tabulated herein are on a basis of difference between scores. A difference of 2 units is considered a "slight" difference, 4 units a "moderate" difference, and one of 6 units "pronounced."

Table 3.—The number of individuals of taste panel and degree of difference expressed in freshness of comparable samples of spotted trout after storage of several intervals of time

Difference in Freshness of Spotted Trout							
Shipment Number	Name	In Favor of Air Transport			In Favor of Railway Express		
		Slight	Moderate	Pronounced	Slight	Moderate	Pronounced
One to four days in storage:							
1T	1	0	2	0	0	0
2T	1	2	0	0	0	0
3T	0	1	2	0	0	0
4T	2	1	1	0	0	0
Total	4	4	5	0	0	0
Five to seven days in storage:							
1T	1	2	2	0	0	0
2T	2	2	0	0	2	0
3T	0	2	1	0	0	0
4T	1	2	1	0	1	0
5T	1	1	2	0	0	0
6T	1	1	2	0	0	0
Total	6	10	10	0	2	0
Eight to eleven days in storage:							
1T	1	2	1	0	0	0
2T	1	0	1	0	0	0
Total	2	2	2	0	0	0

Freshness of comparable samples was scored on a numerical basis from 2 to 10, by two-unit intervals. Fresh fish received a score of 10. The data tabulated herein are on a basis of difference between scores. A difference of 2 units is considered a "slight" difference, 4 units a "moderate" difference, and one of 6 units "pronounced."

ate" but none as "pronounced." The actual scores for Spanish mackerel (*Scomberomorus maculatus*), spotted sea trout (*Cynoscion nebulosus*), and

white sea trout (*Cynoscion arenarius*) were analyzed statistically to test the significance of the seemingly "slight" and "moderate" differences in favor of

air transported fish. In the case of spotted trout, the difference was found "highly significant." This does not mean that the differences found were large ones, but rather that the small differences indicated actually did exist. No statistically significant differences were found between Spanish mackerel or white sea trout shipped by air and those shipped by railway express. (Table 2.)

Whenever storage tests were made, a fresh sample of fish was required for comparison. Due to irregularities in the supply of fish available at the time of the tests, it was not always possible to get the required comparison sample on the day it was needed. The fish were therefore sent as they became available and as nearly as possible to required schedules. This resulted in storage tests being made at different intervals of time for each shipment. For an analysis of the results of these tests, the storage times were divided into three groups depending on days of storage: one to four days, five to seven days, and nine to 11 days. The data in Table 3 reveal a preference of the taste panel in favor of air transported spotted sea trout and this preference is maintained for the one to four, and five to seven-day periods of storage. After nine days, fish shipped by either method began to deteriorate rapidly and were of about equal freshness. A statistical analysis of the data confirms the significance of these interpretations. Not enough storage tests were made with the other species of fish to warrant comparisons. (Table 3.)

In all, five species of fish were used in shipments from Florida by air transport and by railway express. The railway express shipments were dispatched two days before the comparable air shipments. On the day of arrival at College Park, representative fish from each type of shipment were cooked under identical conditions and served to a taste panel who judged the fish for freshness.

A small average difference in freshness in favor of air transported fish was observed. The statistical analysis of the scores confirmed this apparent difference in favor of air transported spotted sea trout (*Cynoscion nebulosus*). This difference, however, was small and was judged to be "slight" or "moderate" in degree. In no instance was the difference found to be "pronounced." It is possible that the fish and shellfish shipped by the two methods were of better quality at the end of the trip than those normally found in the inland markets since only strictly fresh fishery products were used and no time was consumed in wholesale or retail distribution channels. There was no difference in flavor of Spanish mackerel (*Scomberomorus*

maculatus) and white sea trout (*Cynoscion armatus*) shipped by the two methods. On the basis of only our shipment each there was no difference in the red snapper (*Lutjanus blackfordii*) and the pompano (*Trachinotus* sp.) shipped by air was preferred to that shipped by railway express.

The fish taken from each air shipment and from each railway express shipment of spotted trout were held in storage at 35°F. in crushed ice. At intervals of several days, samples were withdrawn and compared for freshness. A consistent preference was found for spotted trout sent by air transport as compared to trout shipped by railway express. This preference lasted through seven days of storage. After this time, all fish deteriorated rapidly and were of about equal quality.

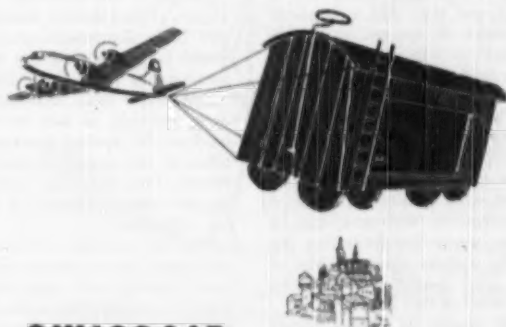
Seattle shellfish shipments

The Seattle shipments consisted of Pacific oysters and fresh cooked Dungeness crab meat originating in South Bend, Washington. The oysters were obtained immediately after shucking and washing, and were packed in No. 10 cans. The crab meat was taken directly from the picking tables and packed in No. 10 cans for shipping. In each shipment, three cans of oysters and three cans of crab meat were sent

by commercial air express and two cans of each were sent by railway express. The railway express shipments were dispatched three days before the comparable air shipments.

The oysters and crab meat to be shipped by air transport were obtained in the morning, packed in cans which were placed in crushed ice, and held for about four hours. These chilled cans of oysters and crab meat were packed in a wooden box with crushed ice in mid-afternoon and sent by railway express to Seattle. On arrival at Seattle in the evening, the cans were repacked in a type C air transport shipping container without dry ice and taken to the air express office at the airport. Since the cans were tightly sealed, it was not necessary to use water-tight inner bags. The containers were shipped on the 10:45 p.m. flight for Washington, D. C. Thus, the oysters and crab meat had been stored in cans surrounded by crushed ice for approximately nine hours and had attained a temperature of 34°F. at the time they were packed for air express shipment. On arrival at Washington, D. C., 41 hours later, the shipments were taken by truck from the airport to the laboratory.

Oysters and crab meat to be shipped by railway express were obtained from the same dealer and chilled as for ship-



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ment by air express. After chilling for four hours, two cans each of oysters and crab meat were packed in a wooden box with 105 pounds of crushed ice and shipped from South Bend, Washington, directly to Washington, D. C., by railway express.

When the air and railway express shipments arrived at College Park, they were compared for freshness. Oysters were compared on the basis of the odor of the uncooked product while the crab meat was compared by testing for flavor and odor. Samples of each shipment were held at 35°F., and similar tests were made at intervals of several days.

The first air and railway express shipments arrived on the same day. Both were in good condition and there was no choice between the products shipped by the two methods. After one day of storage, the crab meat shipped by air express had developed a slight "off" odor and flavor. The crab meat sent by railway express was still in good condition. After two days of storage, the crab meat shipped by railway express had also developed an "off" odor and flavor. By the fifth day of storage, both lots of crab meat were definitely spoiled and were discarded.

Oysters shipped by the two methods were of about equal quality until the seventh day of storage. At that time, the oysters shipped by air express developed a slightly sour odor. Those sent by railway express were still in relatively good condition. By the twelfth day, all oysters had a sour odor and were judged to be unsalable.

In the second shipment of these products, the air express shipment arrived a day in advance of the railway express shipment. However, both were in good condition on the days of arrival and were about equal quality. On the third day of storage, the crab meat sent by air express was definitely spoiled but the railway express shipment was of relatively good quality. Both samples were discarded at that time.

It would appear from these results that oysters sent by air express and railway express were of equal freshness at the time of arrival at College Park. The quality of the oysters in one railway express shipment was maintained satisfactorily for a longer time in storage. The reverse was true for the second shipment. In about two days, the crab meat shipped by air express had spoiled but that sent by railway express was satisfactory for a slightly longer time.

In both air express shipments, the shipping containers arrived in excellent condition. For the first air express shipment, the temperature of the oysters and crab meat averaged 40°F. representing a temperature rise per hour of

0.4°F. In the second air express shipment, the temperature of the oysters and crab meat averaged 52°F. an increase of 0.5°F. per hour while in the package.

The oysters and crab meat in both railway express shipments arrived well-covered with crushed ice and the temperature of the products did not exceed 34°F.

In all, two shipments of Pacific oyster (*Ostrea gigas*) and Dungeness crab meat (*Cancer magister*) were made. No consistent difference in freshness between the two lots of oysters was apparent. The crab meat sent by both methods of transport was of equal freshness on the day of arrival at College Park. The crab meat shipped by air express, however, deteriorated more rapidly in storage.

Conclusions

It should be noted that a standard procedure for handling fresh fish and shellfish has been developed for railway express shipment. Fish shipped by this method were used for comparison with those of similar initial quality sent by air transport. Since no standard procedure had been developed for shipping fish and shellfish by air transport, procedures were used which, it was believed, could be followed on a commercial scale for air express shipments. Packages of fish were delivered to the airport at the end of a normal working day. Night flights were used since they would be cooler than day flights and because fish shipped on these flights would reach their destination in the early morning, in time for the early markets. No special precautions were taken at the airport to keep the containers of fish cool while awaiting loading on a plane or unloading and awaiting collection.

The ideal solution to the problems of packaging for air transport would seem to be a refrigerated cargo space in the plane to provide temperature control to maintain lower temperature in the product and some type of water-tight container to prevent damage from leakage. *Until planes with such equipment are in common usage, however, special packaging seems to be the most satisfactory solution.* Containers for such service should

- Possess adequate temperature control.
- Be light in weight.
- Be water-tight.
- Be inexpensive.

There seems to be little choice between the three types of water-tight bags used in the air transport shipping containers as far as strength is concerned. In 19 shipments, two bags were punctured and six leaked slightly at a seam.

Of the three types of air transport shipping containers which were tested, all were found to be satisfactory but in varying degrees. These containers were suitable for either passenger or cargo aircraft since they were water-tight and odor-proof. To accomplish this, however, the containers were made of multiple units which made their use somewhat complicated and their packing time-consuming. All containers were in good conditions at the end of the tests.

There was no discernible difference in the appearance of the fish shipped by air transport and those shipped by railway express. Very few fish had bruises and these were found in both types of shipment. There was no apparent leaching of color of any of the fish.

It seems probable that other considerations than those involved in this investigation will determine the degree to which the fishery industries employ air transportation for their products. Differences in freshness attributable to the more rapid delivery, while noticeable, are probably not marked enough to be a deciding factor.

No attempt has been made in these tests or in this report to weigh the economic considerations involved or other possible advantages in favor of one method of transportation as compared to the other.

U. S. OVERSEAS AIR CARGO

(Continued from Page 27)

tive of trends in other airports as a group. Such an estimate for 1948 is shown below:

Airport	Pounds
La Guardia and Miami	43,859,000
Remaining ports except Idlewild:	
Imports	6,826,000
Exports	18,302,000
Idlewild	3,500,000
Total	72,487,000

The estimates of traffic at all ports other than La Guardia Field, Miami International Airport, and New York International Airport (Idlewild) were derived by applying to the 1947 figures for all such ports (last 2 months estimated) the percentage increases for imports and exports (35.8 and 18.1, respectively, as shown above) at La Guardia Field and Miami International Airport combined. The estimate for Idlewild, which was not in operation in 1947, represents the sum of reported scheduled carrier traffic at that port in 1948, plus an allowance for nonscheduled carrier traffic. Total indicated foreign trade by air in 1948 was therefore more than 36,000 tons, compared with 27,480 tons in 1947 and 15,158 tons in 1946.

IV. AIR TRADE BETWEEN CONTINENTAL UNITED STATES AND NONCONTIGUOUS TERRITORIES

Although they received a limited amount of air express service via Pan American Airways prior to World War II, the United States' two Territories of Alaska and Hawaii, and its largest insular possession, Puerto Rico, have been, until recent years, almost completely dependent upon steamship service for economic survival. In each case, all but a small part of the total trade is carried on with continental United States. While the percentage of that trade moving by air is still small, such traffic has grown rapidly since 1945, reflecting the postwar origin and development of non-certificated air services, as well as the certification of additional air carrier services to and from the noncontiguous territories.

A complete series of data showing air trade between continental United States and its noncontiguous territories is not available. The major sources of such data are unpublished monthly reports received by the Bureau of the Census on shipments of merchandise by air from Hawaii and Puerto Rico to continental United States; statistics furnished by air carriers to the Civil Aeronautics Board; and information supplied the CAB by other than air carriers in connection with cases before the Board involving air service between continental United States and noncontiguous territories. This section brings together from those sources pertinent data regarding the volume and characteristics of air cargo traffic moving between continental United States and Alaska, Hawaii, and Puerto Rico. Corresponding data with respect to the other possessions of the United States are not readily obtainable.

(A) Alaska

The relatively limited development of air cargo service between continental United States and Alaska prior to 1946 and its sharp upward rise in that year are indicated in Table 15 (next month). The data in Table 15 purport to refer to scheduled service only. Hence they are probably a reliable measure of the growth trend prior to 1946, but understate the increase beginning in that year, since nonscheduled air freight traffic between Alaska and the States developed chiefly after the end of World

War II. Even though the statistics in Table 15 understate the postwar expansion in air cargo service, they show the beginning of a highly significant shift toward the greater use of air transport of freight and express between continental United States and Alaska. The movement of air mail between those areas is shown for purposes of comparison with freight and express traffic.

Table 15 carries the trend in scheduled air cargo service between Alaska and the States only as far as June 30, 1947. Expansion in the volume of such service during the last half of 1947 and the year 1948 was even more pronounced; and nonscheduled air traffic,

not included in the table at all, was at a high level during those periods. Thus, while the table below shows a total of 511,542 pounds of freight and express carried in scheduled air service between continental United States and Alaska during the year ended June 30, 1947, it has been estimated that six million pounds were moved by all air carriers, in scheduled and nonscheduled service, between those areas in the calendar year 1947.

Available data indicate that numerous carriers have participated in the postwar United States-Alaska movement of cargo and/or passengers by air, but that a small number of airlines have

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carried the greater part of the cargo over this route. The combined traffic of two certificated carriers—Northwest Airlines and Pan American Airways—and two carriers not certificated for air service between continental United States and Alaska—Alaska Airlines and Mt. McKinley Airways—account for 5.9 million of the six million pounds mentioned above as the estimated total United States-Alaska cargo traffic in 1947. The former two airlines have operated to and from Alaska largely in scheduled service, while the United States-Alaska services of the latter two carriers have been conducted under temporary exemption on a nonscheduled basis. Table 16 (next month) summarizes the revenue cargo carried by these four airlines in United States-Alaska service during 1946-48.

If the data in Table 16 are extrapolated for the full calendar year 1948, the indicated United States-Alaska air cargo traffic carried by the four airlines shown increased approximately 75 percent over the 1947 level, reaching a projected level of approximately 10.4 million pounds in 1948. A number of other carriers were involved in the United States-Alaska air cargo service, as will be indicated in Table 23 pertaining to the third quarter of 1948, but their combined contribution to the total traffic over the route was comparatively small.

The north-bound flow of air cargo to Alaska during 1948 continued far in excess of the south-bound movement, as indicated by the following:

Item	North-bound traffic—pounds	South-bound traffic—pounds
Alaska Airlines—May through November 1948	2,889,340	238,351
Pan American Airways:		
Year 1946	275,907	46,745
Year 1947	313,153	156,548
Year 1948 (11 months)	2,946,496	294,854

These data show, however, that the south-bound traffic of Pan American Airways increased sharply from 1946 to 1948, though somewhat less rapidly than the north-bound movement.

Table 17 (soon to be published) depicts the relative volume of various types of commodities carried between the continental United States and Alaska by three airlines during two-week periods in August, 1947, and February, 1948.

The data in Table 17 are marked by wide variation among the three airlines in types of commodities carried and by differences in the consist of traffic moved by each airline in the two periods. Considering the data as a whole, the leading commodities moving in the United States-Alaska service during the periods considered were food, construction materials, machine parts, newspapers and magazines, furniture, personal effects, and general merchandise not otherwise specified.

(Continued Next Month)

(Tables Continued from Page 27)

Continent and country	Exports		Imports	
	Value (Dollars)	Shipping wt. (Pounds)	Value (Dollars)	Shipping wt. (Pounds)
France	1,245,271	160,357	411,860	26,833
Switzerland	1,099,078	116,886	10,945,638	64,433
Union of Soviet Socialist Republics	13,974	4,693	1,941,065	5,099
Other Europe	1,029,086	323,102	1,633,875	119,611
Total, Europe	11,337,494	1,310,531	14,579,781	378,689
Asia:				
Turkey	142,831	8,826	84,302	1,236
India and Pakistan	508,805	34,899	68,550	813
Thailand	90,023	9,437	178,627	2,983
Philippines, Republic of	2,437,516	166,318	166,152	13,092
China	643,842	151,615	146,040	3,721
Other Asia	1,575,238	175,908	470,429	5,786
Total, Asia	5,368,255	546,703	1,094,190	30,631
Australia, New Zealand and Oceania, Total	323,897	57,642	26,711	4,409
Africa:				
Egypt	333,862	61,299	200,369	22,533
Belgian Congo	22,969	3,041	2,596	352
Union of South Africa	214,326	18,375	815,675	36
Other Africa	181,744	21,899	12,378	1,158
Total, Africa	752,900	104,614	1,031,018	24,079
Grand total	44,036,264	10,088,630	20,130,590	2,919,246

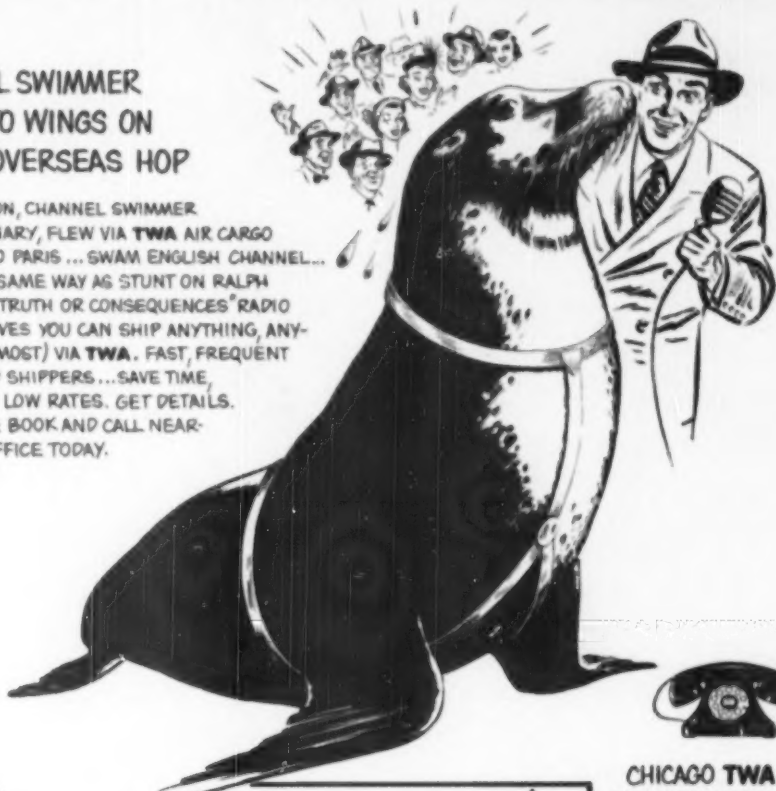
FOURTH QUARTER

Continent and country	Exports		Imports	
	Value (Dollars)	Shipping wt. (Pounds)	Value (Dollars)	Shipping wt. (Pounds)
North America:				
Canada	1,601,190	794,878	701,096	117,362
Mexico	8,063,884	2,494,967	996,933	582,228
Central America	2,718,444	1,061,177	199,708	119,223
Cuba	5,028,515	4,283,468	900,390	771,802
Other North America	1,316,011	499,244	254,694	157,767
Total North America	19,328,053	9,053,734	3,055,814	1,746,382
South America:				
Colombia	3,303,161	851,298	183,933	64,480
Venezuela	3,328,286	1,066,038	597,524	8,247
Brazil	4,518,877	727,285	882,424	42,790
Argentina	3,833,064	473,702	283,308	24,258
Other South America	1,084,756	200,648	115,735	49,470
Total, South America	16,068,144	3,318,971	2,033,144	173,245
Europe:				
Sweden	781,611	68,622	184,326	6,115
United Kingdom	1,253,860	192,513	859,224	54,231
Netherlands	1,047,034	107,113	474,130	23,650
Belgium and Luxembourg	3,702,842	318,089	996,556	18,735
France	941,053	131,033	1,198,086	35,984
Switzerland	2,269,754	243,512	13,900,830	106,523
Union of Soviet Socialist Republics	14,624	3,340	252,366	1,818
Other Europe	2,112,021	304,343	2,465,186	179,380
Total, Europe	12,122,799	1,369,665	20,330,724	626,436
Asia:				
Turkey	241,730	15,798	20,165	1,008
India and Pakistan	545,707	39,096	73,597	6,760
Thailand	115,789	31,392	385,461	2,856
Philippines, Republic of	2,932,387	158,127	133,761	14,644
China	633,840	89,563	142,604	7,561
Other Asia	1,583,309	196,035	657,686	18,513
Total, Asia	6,062,622	530,311	1,413,696	51,286
Australia, New Zealand and Oceania, Total	570,325	60,126	53,365	9,555
Africa:				
Egypt	453,708	106,388	146,373	22,785
Belgian Congo	37,597	3,277	64,738	47
Union of South Africa	361,000	71,702	853,296	358
Other Africa	260,962	22,063	16,470	2,342
Total, Africa	1,113,707	306,482	1,080,467	35,432
Grand total	55,455,680	14,556,261	27,967,470	2,434,336

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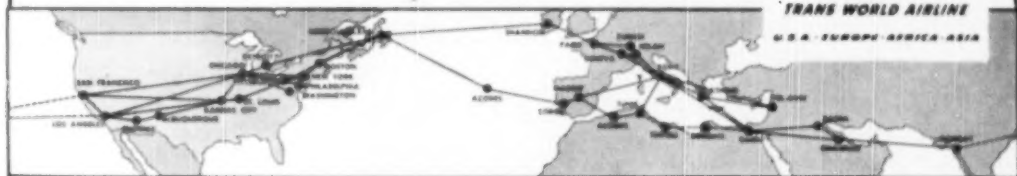
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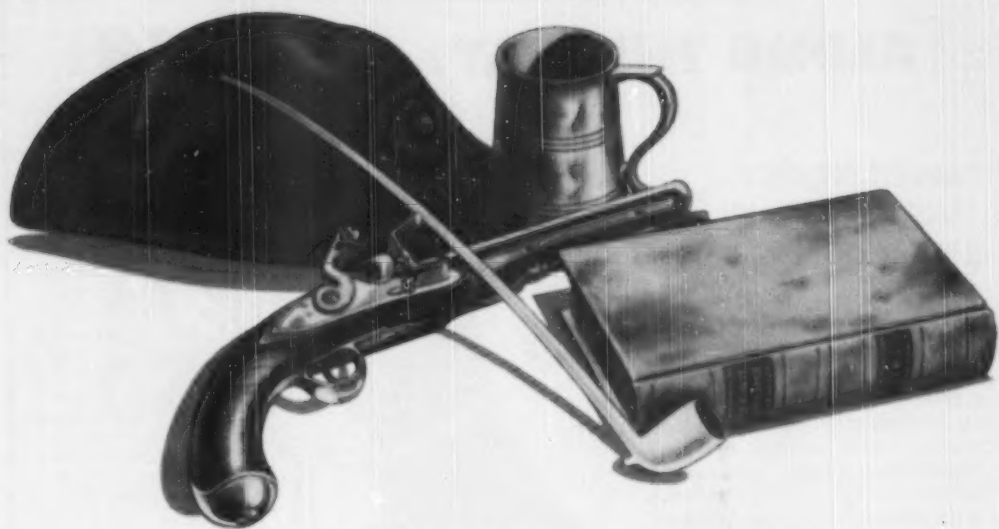


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